OFFICIAL PROGRAM

TRANSACTIONS

AMERICAN ACADEMY
of
OPHTHALMOLOGY
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OTOLARYNGOLOGY

JULY - AUGUST
1956

Volume 60 Number 4

ANNUAL MEETING, OCTOBER 14-19, 1956, CHICAGO

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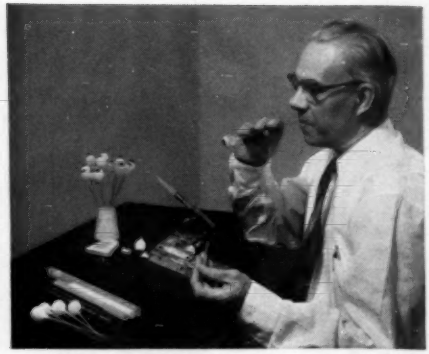

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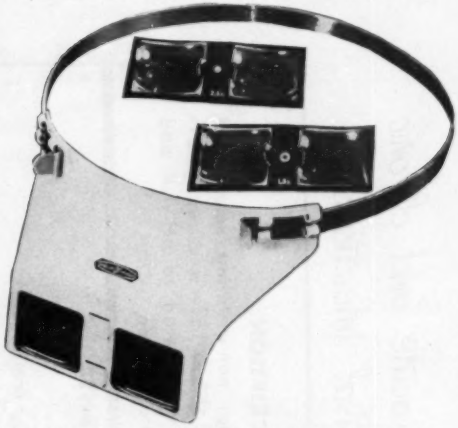

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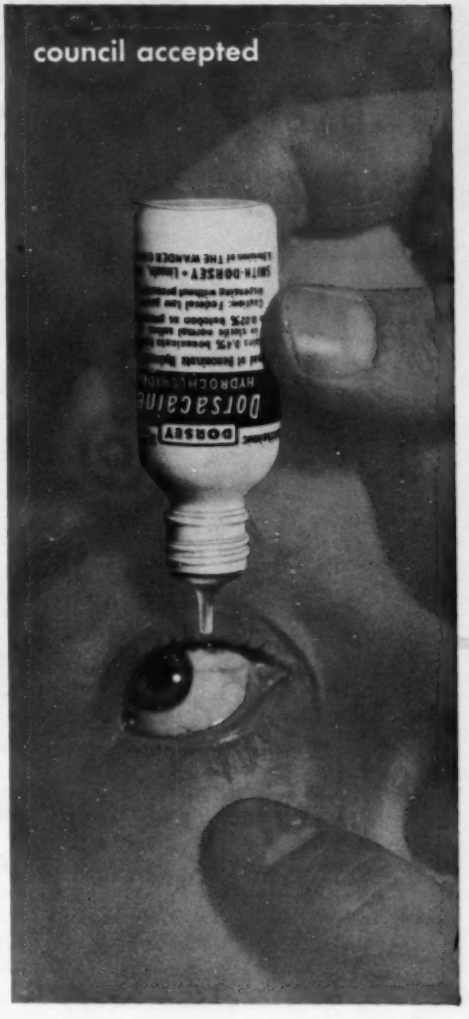

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*Schlegel, H. E., Jr., and Swan, K. C.: A. M. A. Arch. Ophth. *51*:863 (May) 1954.

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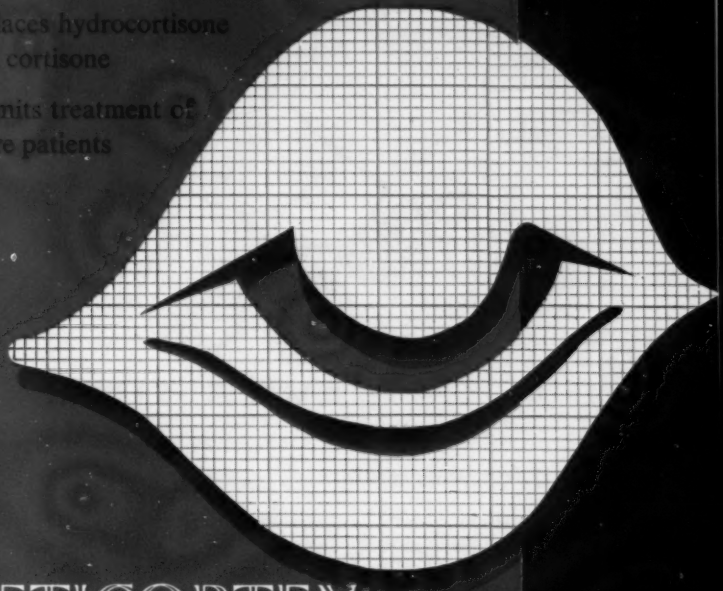

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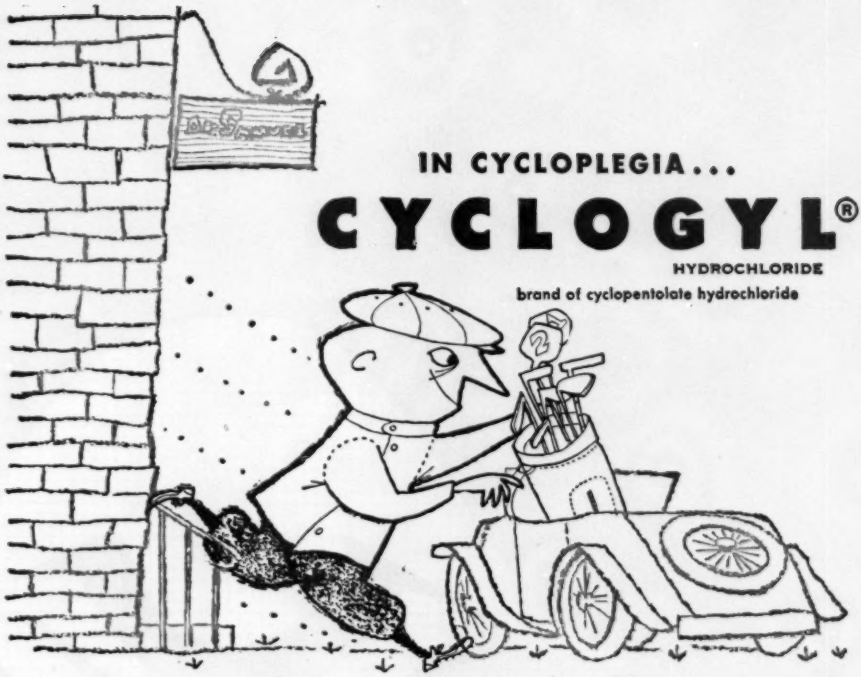

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1. Gordon, D. M., and Ehrenberg, M. H.: Am. J. Ophth. 38:831 (Dec.) 1954.

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Gettes, B. C.: A.M.A. Arch. Ophth. 51:467 (Apr.) 1954.

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Ehrlich, L. H.: New York J. Med. 53:3015 (Dec. 15) 1953.

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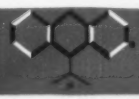

1. Becker, B.: Chlorpromazine—A New Anti-Emetic Agent, Am. J. Ophth. *38*:576 (Oct.) 1954.
2. Moore, J. G.: Chlorpromazine (Largactil) as a Premedication in Ophthalmic Surgery, Brit. J. Ophth. *39*:109 (Feb.) 1955.
3. Nutt, A. B., and Wilson, H. W. J.: Chlorpromazine Hydrochloride in Intraocular Surgery, Brit. M. J. *1*:1457 (June 18) 1955.
4. Fritz, M. H.: Thorazine® as Preoperative Medication in Ophthalmology and Otolaryngology, Eye, Ear, Nose & Throat Monthly *34*:515 (Aug.) 1955.

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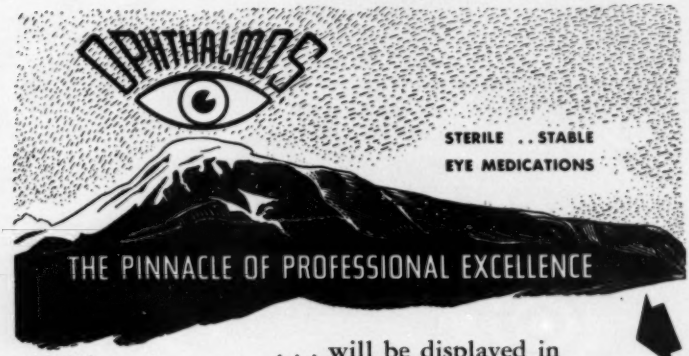

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The Use of the Systemic Hemostat Carbazochrome Salicylate

J. C. Bacala, M.D.

(Abstracted from the Western Journal of Surgery, Obstetrics, and Gynecology, 64:88 (1956)

The author emphasizes the need for dependable chemical control of bleeding and oozing, and reviews the methods that have been tried to attain hemostasis, including the use of vitamin K and bioflavonoids.

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The author points out that in pregnancy, seepage bleeding occurs more because of capillary permeability, and in spite of increased coagulability. Here, Adrenosem becomes specific for strengthening capillary resistance.

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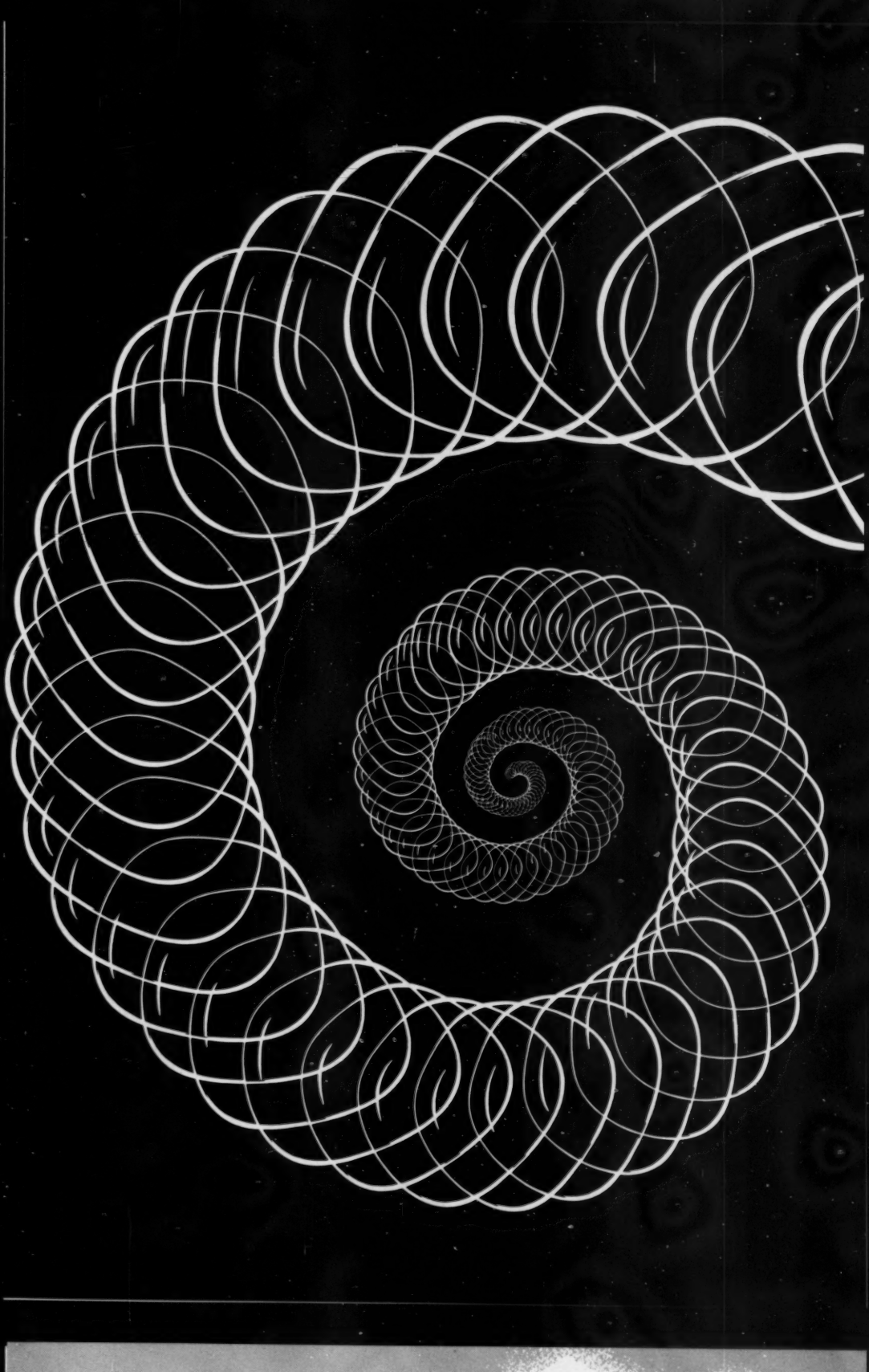

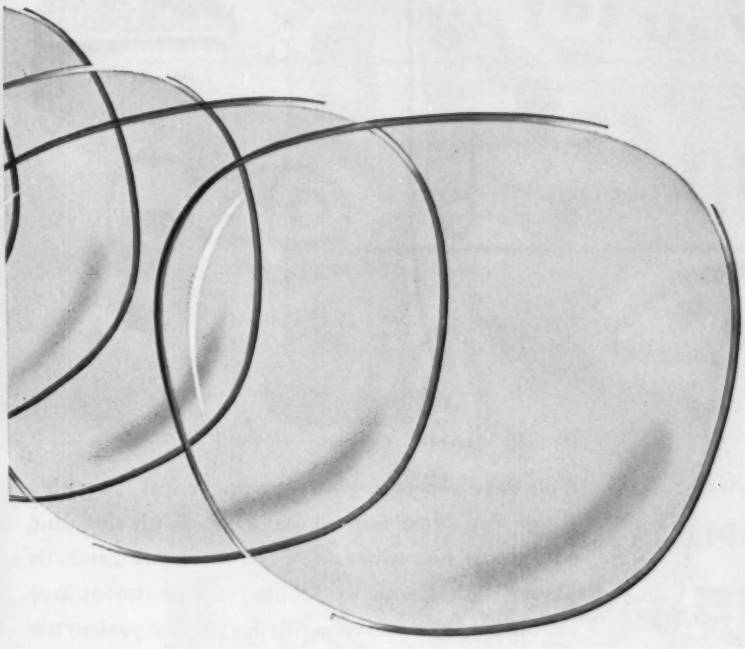

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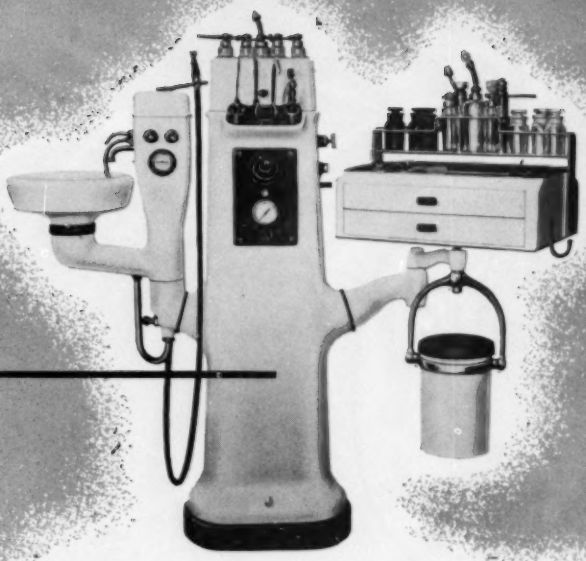

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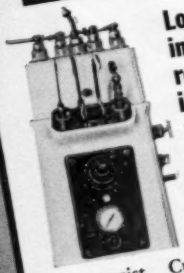

Low voltage instruments ready for instant use

Low voltage instruments positioned for easy grasp, are used without constant cord pull, yet are returned to the unit with a flick of the wrist. Current automatically turned off when instrument returned to holder.

Individual rheostats control cauteries and illuminated instruments. Auxiliary switch can control room lighting or Ritter Compressor. All controls and call button are within easy reach . . . pressure and vacuum gauge visible from operating position. Unit has extra plug-jack on side, for attaching head lamp or other low voltage instruments.

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The Ritter Ear, Nose and Throat unit was designed to help you utilize your skills to the fullest extent with a minimum of effort. You have your choice of four models—the cuspidor on the right or left side as an integral part of the unit, or a right or left-hand unit with the surgical cuspidor separate for placing on the opposite side of the chair.

WRITE for complete, detailed information on the Ritter ENT Unit, Ritter ENT Motor Chair, or Ritter Combination Ear, Nose and Throat-Oral Surgery Unit. Ritter Company Inc., 4820 Ritter Park, Rochester 3, New York.

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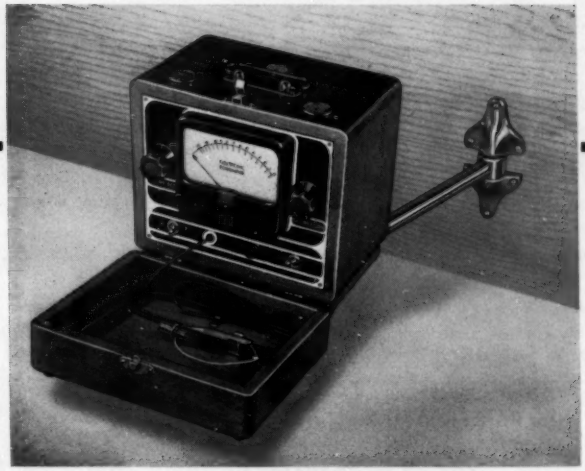

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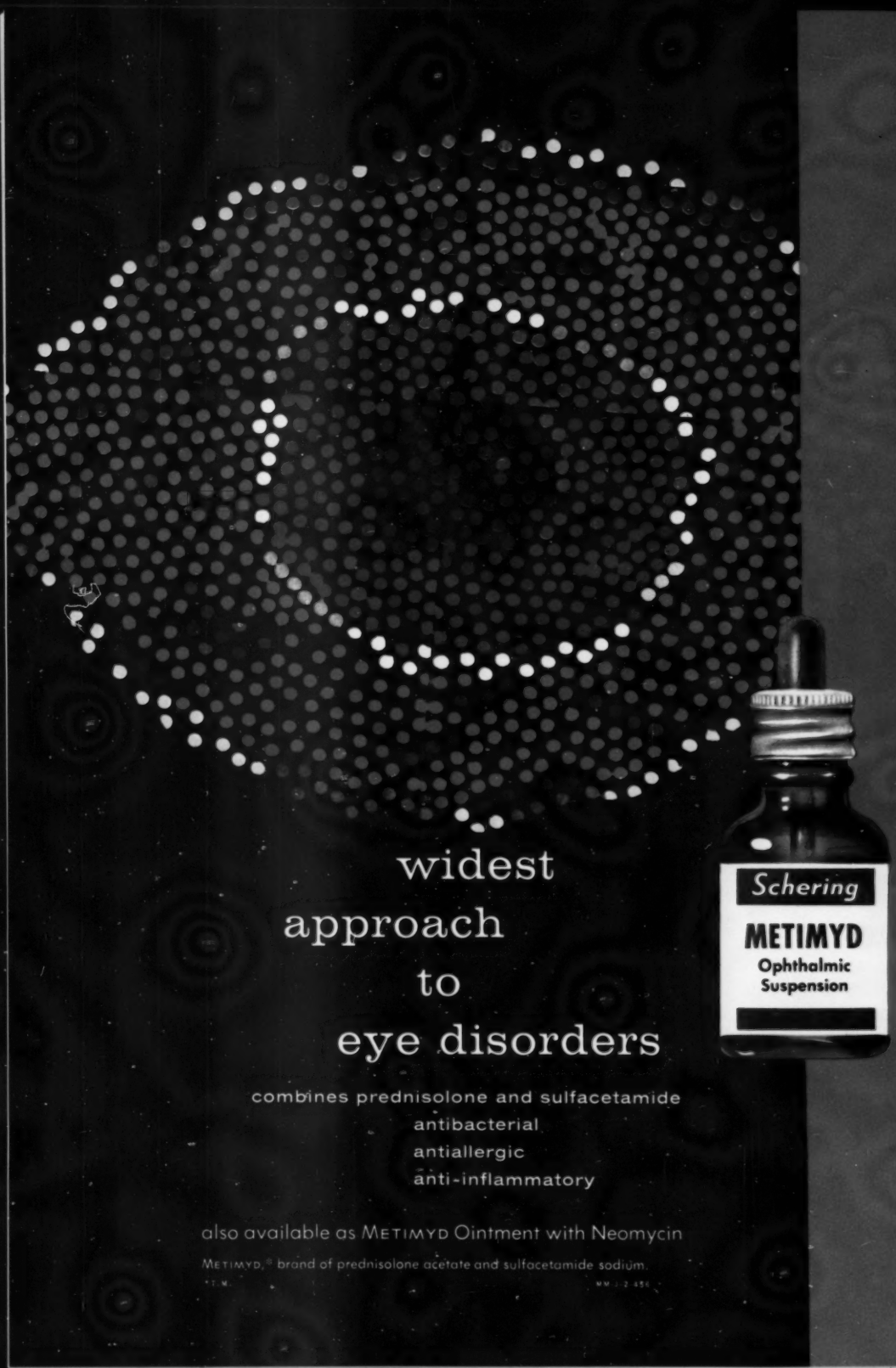
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RM-J-1-456

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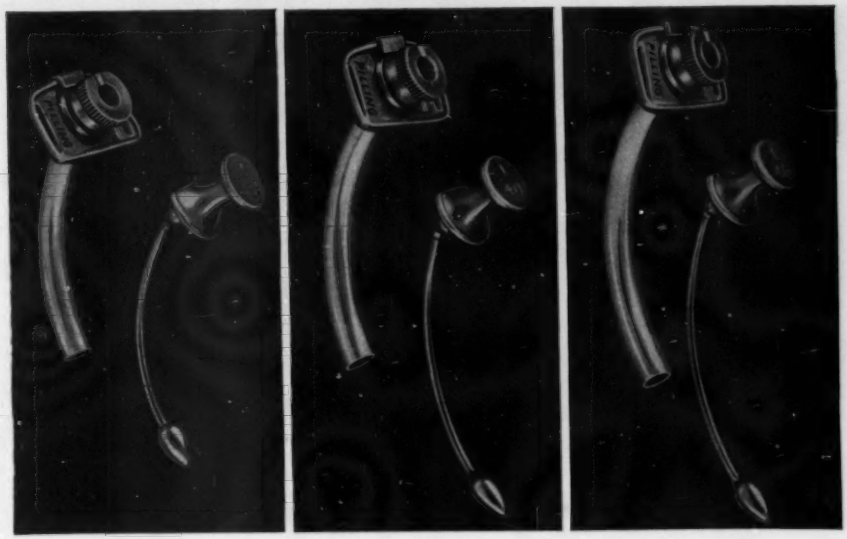

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This new Infant Trachea Tube is designed to fit the smallest patient—down to four pounds—with as much comfort and convenience as possible.

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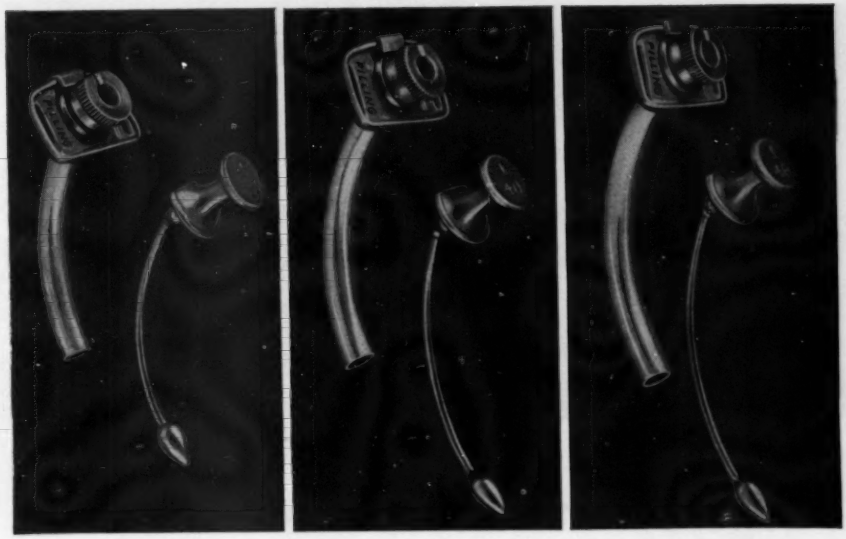

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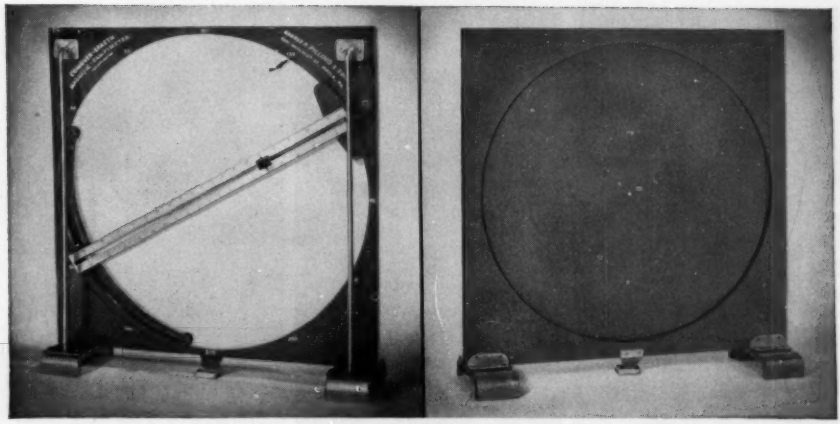

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This new precision instrument gives *accurate* determinations and correct configuration of the visual field with great savings of time and effort.

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This assures accuracy and eliminates time-consuming rechecking.

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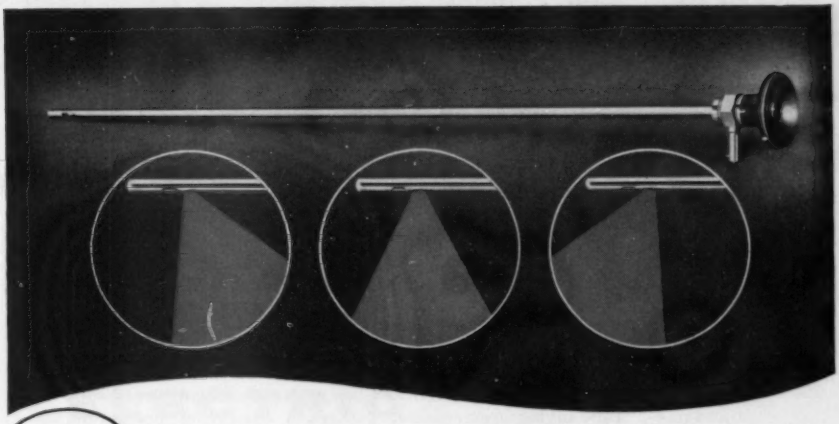

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Perfect compatibility with Jackson bronchoscopes and equipment

Pilling-made telescopes offer the bronchoscopist the advantages of working with a perfectly balanced instrument with superior optical system and trouble-free electrical design.

The basic design assures easy service and replacement of parts.

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Br 1400	5.4 mm. diameter for use with 6 mm. full lumen or 7 mm. standard bronchoscope
Retrospective,	approximately 55° field of vision, 48 cm. long
Br 1405	4.8 mm. diameter for use with 5 mm. full lumen or 6 mm. standard bronchoscope
Br 1406	5.4 mm. diameter for use with 6 mm. full lumen or 7 mm. standard bronchoscope
Right Angle,	approximately 55° field of vision, 48 cm. long
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Br 1411	5.4 mm. diameter for use with 6 mm. full lumen or 7 mm. standard bronchoscope

ELECTRICAL FEATURES: The lamp is designed especially for long life. Made with a hard rubber insulated and soldered contact, it has a positive electrical connection at all points and at all times, and avoids two sources of trouble—wires and pigtail contacts.

A bayonette connection identical with all Jackson bronchoscopes makes it possible to use the same cord for the telescope current as for the bronchoscope—one type cord in use throughout all bronchoscopic procedures.

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The authentic instrument is available only from Pilling—order direct

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This stainless steel box stores bronchoscopic telescopes safely and ready to use—protects the delicate shaft and optical system from damage by shock, accidental abrasion or scratching by other stored instruments.

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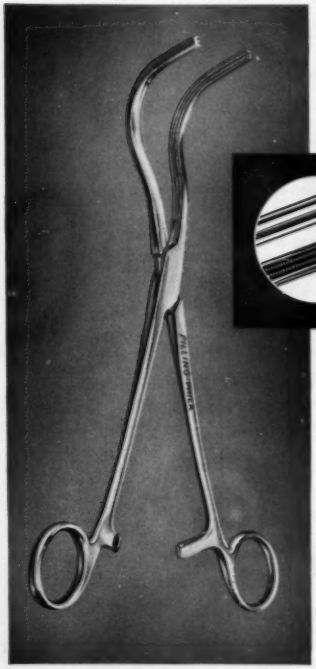

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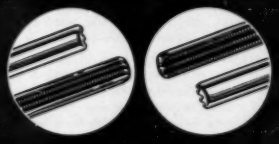

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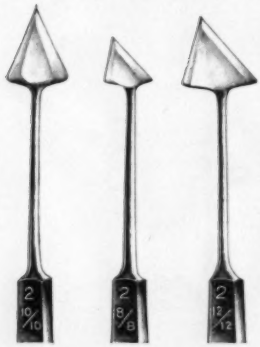

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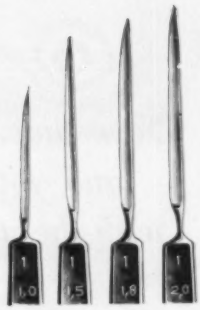

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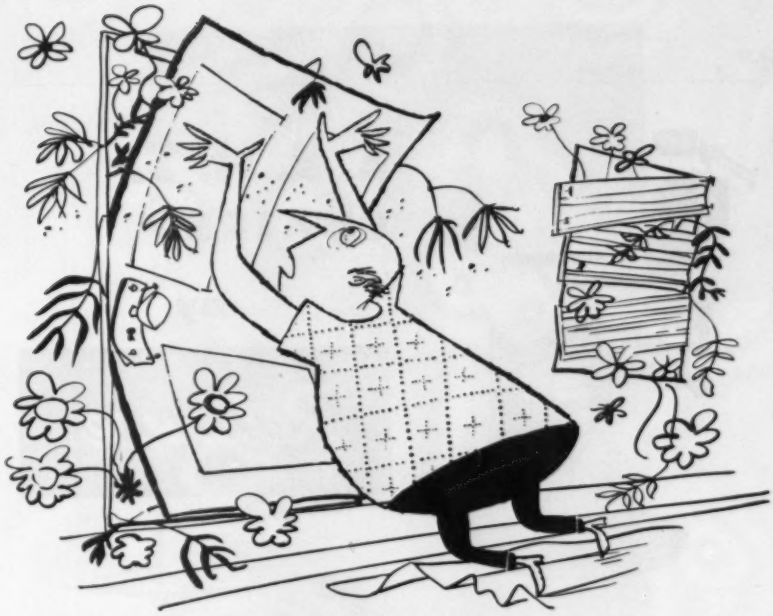

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Reference: Hogan, M. J., Thygeson, P. and Kimuras, J., Arch. Ophth. 53:165, (Feb.) 1955.

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'NEOSPORIN'® brand Antibiotic OPHTHALMIC SOLUTION

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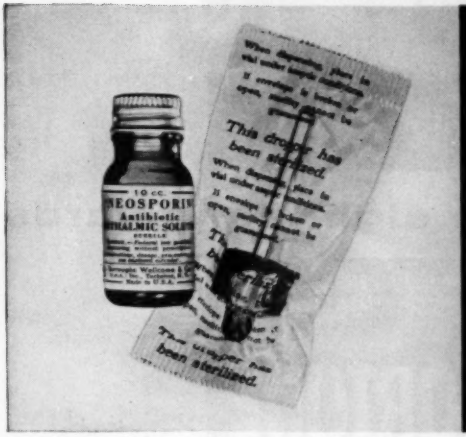

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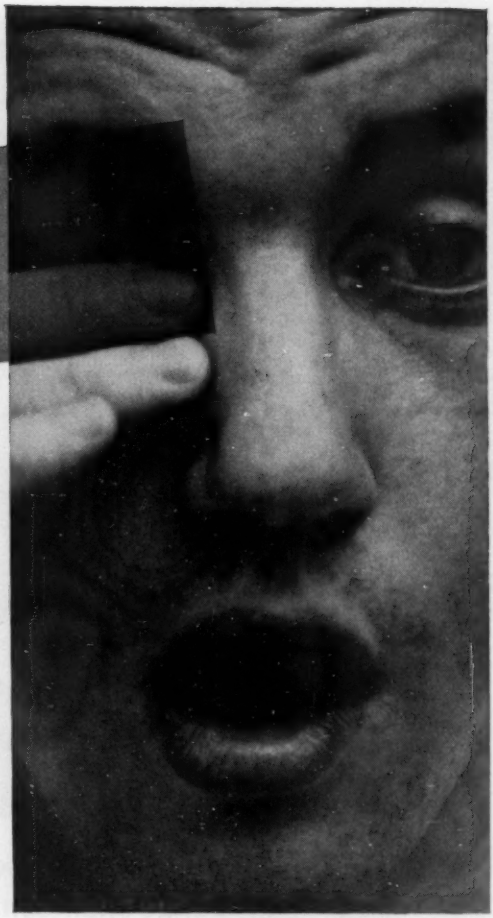

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1. Robinson, H. M., Jr., et al.: M. Times 83:227, 1955.

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Symposium: The Uses and Abuses of the Corticosteroids in Ophthalmology and Otolaryngology

OTOLARYNGOLOGIC ASPECTS

AUBREY G. RAWLINS, M.D.
SAN FRANCISCO, CALIFORNIA

THE recent era of antibiotics and other antimicrobial agents has encouraged us to think mostly about destroying invading organisms and *to forget about the host.*[20] With more knowledge and use of hormones, it becomes necessary for us to direct our thoughts to the *natural* protective mechanisms of the body. The corticosteroids* may be harmful to individuals with certain pathologic conditions, and overdosage is temporarily harmful to all. Therefore, it behooves us, when possible, to use these agents in conditions and in doses that will not harm the tissues and functions of the body. If this is done, we will find that we *now* have some very useful tools which were not at our disposal only a few years ago.

If one attempts to review the literature on the pituitary and adrenal cortical hormones, one will become somewhat "dizzy" on finding the *stupendous* amount of investigative work being done on this subject. Also, one will be astounded to find that *in large doses,* these hormones can effect almost *any* physiologic and pathologic condition in the body. It will also be noted in this review that in most of the investigative work, the hormonal doses used are very *large* and often the results are contradictory. To add to the confusion, presentations of hypotheses explaining, or trying to explain, the mechanism of actions of the corticoids are innumerable.

The literature reveals that there is even some question about the number of hormones produced. For example, Li[24] believes that there may be more than one ACTH. Verzár[44] gives evidence that, normally, mineralocorticoids are not secreted by the adrenal cortex but are only intermediate products which eventually are metabolized to glucocorticoids. He attributes the action on minerals, proteins and fats to the gluconeogenesis produced by the 11-oxycorticoids. He states that only the 11-oxycorticoids can be found in the blood stream. Godlowski[15] presents the hypothesis that the corticosteroids ameliorate allergic symptoms by improving the inefficient proteolytic enzyme systems so that the foreign proteins are more readily broken down to their normal end products. In spite of all the confusion, there is one observation that stands out, i.e., the diseases which respond best to the corticoids are those in which some allergic phenomenon operates and in which there is involvement of the connective tissue.

The main function of the pituitary-adrenal axis is the maintenance of healthy cells and tissue, not only under

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*In order to prevent repetition, the terms corticosteroids, corticoids, and glucocorticoids will be used interchangeably and will designate the 11-oxycorticoids, or cortisone-like hormones.

normal physiologic conditions but also under stress.[19] Hence, any human who does not possess an efficient mechanism for the production of cortical hormones is basically ill.[44]

There are a few direct effects of ACTH which follow without the intervention of the adrenal cortical steroids. The most important of these are the ascorbic acid depletion of the adrenal cortex, weight maintenance of the cortex and hypertrophy of the cortex.[24] The other innumerable actions involved in the pituitary-adrenal function of maintaining homeostasis are produced directly or indirectly by the cortical hormones themselves. Some of these actions, along with a few negative findings, have been listed below.

Actions Resulting From the Use of 11-oxycorticoids

1. Produces eosinopenia.[36]
2. Produces lymphocytopenia.[36]
3. Produces involution or breaking down of lymphatic tissues.[36] (This breaking down of lymphocytes can liberate antibodies preformed in the lymphatic tissues. The destruction of lymphatic tissue can also depress the synthesis of antibodies.)
4. Produces generalized leukocytosis but inhibits the migration of neutrophils to a local inflammatory area.[36]
5. Produces gluconeogenesis,[44] i.e., makes glucose available even if it has to be produced from protein or fat.
6. Has anti-inflammatory and antiphlogistic action,[36] with depression of all elements of granulation tissue.[8,10]
7. Has antitoxic action.[36]
8. Has antihyaluronidase activity in vivo.[26]
9. Inhibits formation of hyaluronic acid of the ground substance,[1,10] i.e., decreases the amount of ground substance.
10. Inhibits the Shwartzman phenomenon,[37] as well as the tuberculin reaction.[12,17]
11. Inhibits reactivity of the conjunctiva and nasal mucosa to the antigen-antibody reaction.[17]
12. Inhibits increased capillary permeability produced by hyaluronidase in all inflammatory reactions studied.[4] (This increased capillary permeability produced by the spreading factor is probably due to liquefaction of the ground substance and sheath around the capillaries.)
13. Inhibits production of inflammatory edema.[36]
14. Increases excretion of uric acid.[38]
15. Increases amplitude of skeletal muscle contraction.[43]
16. Increases coagulability of the blood (increasing the possibility of thromboembolic complications).[7]
17. Fails to affect the release of histamine into the blood stream in the antigen-antibody reaction.[21]
18. Fails to block histamine[21] (unlike antihistaminic drugs).
19. Fails to affect the histamine or allergic skin tests.[21]
20. Fails to affect the antibody production in humans except in very large and prolonged dosage.[18,22,27]
21. Raises the blood level of nonspecific hyaluronidase inhibitor in normal subjects, but lowers it in patients with rheumatic fever and arthritis who have been successfully treated with corticosteroids,[16] i.e., the pituitary-adrenal axis regulates the amount of nonspecific hyaluronidase found in the blood stream.
22. Decreases the permeability of ground substance.[35] (This is tremendously important, since the consistency of the ground substance regulates the passage of substances from the parenchymatous cells to the circulation, the passage of oxygen and nutrients from the circulation to the cells, and also the passage of infectious organisms from the surface epithelium to the blood stream and other deep vital structures.)
23. Helps maintain a good peripheral vascular bed[11,48] by improving smooth muscle tone and maintaining healthy capillary endothelium.
24. Degranulates the connective tissue mast cells, thus liberating heparin-like mucopolysaccharides.[26]
25. Depresses the activity of mesenchymal wandering cells.[28]
26. Aids nerve tissue in synthesizing acetylcholine.[43]

27. Aids in the control of the metabolism of histamine[33] (the histamine content of blood and tissues being increased in adrenalectomized animals).
28. Lowers the host's resistance to infection in large doses and enhances this resistance in small doses.[25,31,32,42,45]
29. Protects single cells from degeneration.[23]

Some of the above actions are very important in otorhinolaryngology and require elaboration.

INFLAMMATION AND CORTICOSTEROIDS

Inflammation can be produced by any stress; it is a chain reaction set off and continued by substances released from cell damage.[9] The severity of inflammation depends upon the inflaming stimulus and the supply of hormones available.[9] It is a definite and well accepted fact that the corticoids have marked anti-inflammatory action, and that growth hormone and thyrotropic hormone enhance inflammation.

Dougherty[9] gives the following hypotheses regarding possible mechanisms in corticoid anti-inflammatory action:

1. Decrease in the level of circulating fibrinogen thus producing a decrease in the amount of fibrin at the site of inflammation.
2. Inhibition of hyaluronidase, thus decreasing the action of the spreading factor.
3. Inhibition of the formation of ground substance.
4. Shedding of mast cell granules with release of a heparin-like mucopolysaccharide which has antihyaluronidase action and which also binds histamine.

To this list, could be added the action on the capillary bed. Dougherty[9] believes that all of these actions take place but that there may be a more fundamental anti-inflammatory phenomenon involving the action of hormones on the many substances liberated as a result of cell damage.

INFECTION AND CORTICOSTEROIDS

There is no question but that the glucocorticoids in large doses impair the host's resistance to many infections. There are numerous explanations for this. Thomas[42] states that there are at least six possibilities:

1. A direct effect on the infecting organism. There is no direct evidence that this takes place.
2. An effect on the neutrophils. Although the corticosteroids produce a systemic leukocytosis, fewer pus cells migrate to the area of local inflammation. There is slight evidence, but no definite proof, that the bactericidal properties of leukocytes are diminished. Some virus infections are also enhanced by *large* doses of corticoids, and since available evidence shows that neutrophils are not important in virus infections, the leukocyte hypothesis becomes somewhat untenable.
3. Influence in antibody formation. There is no definite evidence that this is a factor in humans.
4. Interference with the inflammatory reaction. The corticoid depression of tissue inflammation is an accepted fact, but, as noted above, the explanation is uncertain. At any rate, the anti-inflammatory theory does not explain the enhancement of virus infections, nor the enhancement of bacteria which are injected directly into the blood stream. In these two instances, there is no local inflammatory reaction. However, some cellular component present in the blood stream could be involved, and the hormone could work on it here.
5. The effect on serological mechanisms, such as the nonspecific hyaluronidase inhibitor. This is a definite possibility.
6. Damage to the reticuloendothelial system. The macrophages in this system are for the purpose of clearing the blood stream of bacteria and particulate matter. There is some evidence that, like certain colloids, cortisone blocks the cells of the reticuloendothelial system so that the macrophages then cannot clear the blood stream of infectious organisms.

It can readily be seen that the phenomenon whereby *large* doses of corticoids enhance infection is not easily explained by any one hypothesis.

On the other side of the picture, Robinson and Smith,[32] Vollmer,[45] and Lurie et al.[25] give evidence to show that in *small* doses, these hormones not only fail to enhance infection but even aid the infected host and protect the host from infection. Robinson and Smith also state that, to date, many patients have received cortisone, and that the number of reports citing intercurrent infection has been negligible.

Jawetz[20] states that in patients seriously ill with infection and toxemia, the antitoxic effect of cortisone may save the patient while a proper antibiotic is destroying the infection.

It would appear, as far as infection is concerned, that with doses of corticoids large enough to produce symptoms of hyperadrenocorticoidism, there is enhancement of the infection, and that with very small physiologic doses, there may be improvement of the host with inhibition of the infection.

POOR STRESS MECHANISM AND THE CORTICOSTEROIDS

It is my belief that at the present time we do not have any test that is sensitive enough to determine mild cases of hypoactivity of the pituitary-adrenal axis. For example, Sternberg and Zimmerman[40] did Thorne tests on a group of allergic patients, and they all showed a normal lowering of the eosinophils. These patients were given a severe stress test, and none of them responded normally; their stress mechanisms were all under par. These cases all responded well to cortisone. This would indicate that many patients have a mild undiagnosed hypoactivity of the pituitary-adrenal axis. In our specialty, this group of patients would include those who fatigue easily, those who are susceptible to upper respiratory infections, and in general, those who have the symptoms of chronic physical allergy. It is not beyond the realm of possibility that, in the future, some of these cases will be successfully treated, and that the health of the patients will be maintained on *very* small doses of corticoids, just as patients with mild hypothyroidism are maintained on small doses of thyroid. I sincerely believe that this line of approach deserves further consideration and investigation.

THE MAST CELL AND THE CORTICOSTEROIDS

Recently, the mast cell has taken on considerable significance in the investigative work on the corticoids. The mast cell, with basophilic staining, is a granulated, mesenchymal cell.[5] The granules contain a heparin-like substance, which is a mucopolysaccharide and apparently an inhibitor of hyaluronidase.[2,13,14] Tissues rich in mast cells and heparin contain a great deal of hyaluronidase inhibitor and other tissues do not.[3] Glick and Sylvén[14] give evidence that the mucopolysaccharide in mast cells is the nonspecific hyaluronidase inhibitor.

Stuart[41] has found that shock organs of different species contain large numbers of mast cells, and he believes that these cells are important in the defense mechanisms in anaphylactic shock.

Bensley[5] produced a great increase in mast cells by injecting histamine into the skin.

Zweifach[47] states that mast cells release their granules when the organism is under any stress, and he also states that these cells are usually found in large numbers around blood vessels.

The work of Asboe-Hansen[3] indicates that thyrotropic hormone increases the mast cells in connective tissue and also makes them become more granulated, while cortisone decreases the number of

these cells, degranulates them and decreases the amount of ground substance. He believes that the mast cells transmit this corticoid action of decreasing the ground substance.

The above investigations indicate that one of the important functions of the mast cell is the maintenance of good ground substance and that the corticoids control this action. Since the connective tissue of the nose and sinuses contains *many* mast cells, they should be of importance in our specialty.

EDEMA, CAPILLARY PERMEABILITY AND THE CORTICOSTEROIDS

In the practice of otorhinolaryngology, edema is often one of our worst enemies; therefore, I will briefly consider this subject in connection with the corticoids.

Burton[6] gives a new concept of the nature of arteriolar or precapillary spasm. He found that when the pressure within the capillaries falls below a certain critical level (this depends on the capillary size, firmness of the surrounding tissue, and vasomotor tone of arteriole or precapillary), they collapse suddenly and completely; it is not a gradual process. At pressures above this critical level, the capillaries act like rigid tubes. This phenomenon favors Williams' hypothesis[46] of arteriolar spasm in conditions such as Ménière's disease and Bell's palsy. In these conditions, the symptoms come on very rapidly.

Pappenheimer[29] found that the interendothelial cement substance makes up only about 0.2 per cent of the available endothelial capillary surface, and that this small area is entirely inadequate to account for the observed rate of transfer of oxygen and carbon dioxide across the capillary wall. He suggested that oxygen, carbon dioxide and other lipid-soluble substances diffuse mainly through the endothelial cells themselves.

Renkin's experiments[30] bear this out. Hence, since the corticoids aid in maintaining healthy capillary endothelial cells, these hormones are important in providing oxygen and nourishment to the delicate organs which we are called upon to treat in our specialty.

Zweifach[47] suggests that capillary permeability depends not only on the endothelial lining but also upon all five elements of the hematoparenchymal barrier. These elements are the proteinaceous covering over the endothelial cells of the capillaries, the endothelial cells themselves, the interendothelial cement, the pericapillary sheath, and the ground substance of the connective tissue. None of these structures is inert, but all are in a constant state of metabolic flux and vary from time to time. The resulting variation in the permeability of each structure is important in its effect on edema.

Zweifach[47] thinks the firmness of the pericapillary sheath is of the utmost importance in preventing edema, and Seifter[34] states that the ground substance, with the pericapillary sheath, surrounding these vessels exerts the ultimate control of capillary permeability.

These observations indicate that we can no longer accept Starling's hypothesis[39] (hydrostatic forces vs. osmotic forces) as the sole factor in capillary permeability and that the production of edema not only is a matter of arteriolar spasm but is of a very complex nature.

The role of the corticoids in preventing edema takes on great importance because of their action in maintaining the integrity of the capillary endothelial cells and, especially, in decreasing the permeability of the ground substance and its pericapillary sheath.

The foregoing reports on research make it obvious that the last word has not been written about the mechanisms of action of the corticosteroids. It is my believe that more definite information will be forthcoming only when we know more about tissue and cellular enzyme activity. At the present time, the watchword in using these hormones is "caution." However, I do believe that with care, careful study and close observation of patients, there are a moderate number of otolaryngic conditions in which the use of the corticosteroids is indicated.

GENERAL ASPECTS AS RELATED TO OTOLARYNGOLOGY

The contraindications for the use of corticosteroids are so well known that they will not be commented upon except to say that they apply in otolaryngology just as in any other field.

A low-salt diet is advisable. High protein diet with the addition of potassium is usually not necessary unless rather prolonged treatment with reasonably high dosage is used. During corticosteroid therapy, an occasional injection of ACTH is indicated in order to stimulate the adrenal cortex. Gradual corticoid withdrawal is usually not necessary except when the dosage has been fairly high and prolonged. Intravenous ACTH gives the maximum stimulation of the adrenal cortex. When infection is involved, the appropriate antibiotic should be used. Wound healing is not stopped but merely inhibited by the corticosteroids. For local use, hydrocortisone is the hormone of choice.

The use of these hormones in large pharmacologic doses over long periods should not be recommended for most otolaryngologic conditions. However, in cases where pharmacologic dosage is necessary, the period of treatment, when possible, should be short. One of the most serious problems in corticosteroid prolonged high dosage therapy is the depression of the adrenal cortex. If we eliminate this kind of therapy, we greatly reduce this danger. However, in surgical cases, if there is any possibility of cortical depression from previous therapy, prophylactic corticoids should be given before and for a few days following surgical stress. Intravenous hydrocortisone and intravenous ACTH should be available for emergencies.

The author has had only slight experience with the newer glucocorticoids, such as meticorten and meticortelone. These synthetic hormones are very powerful, but they have only very slight mineral activity. If time shows that other side reactions are of minimal degree, they should be very useful. They should be of particular value when used in conditions where the main problem is one of edema. In some conditions and with some patients, ACTH is more effective than the corticosteroids.

OTOLARYNGOLOGIC CONDITIONS IN WHICH THE CORTICOSTEROIDS ARE USEFUL

Hay Fever

Particularly in severe cases of hay fever not controlled by ordinary methods and in localities where the season is short, the corticosteroids may be useful. Besides their use in systemic therapy, the local use of hydrocortisone eye drops is effective. The local use of hydrocortisone intranasally is only mildly efficacious.

Status Asthmaticus

In this serious condition, intravenous hydrocortisone or intravenous corticotropin may be a lifesaving procedure.

Reactions to Penicillin and Other Drugs; Hives; Angioneurotic Edema

These maladies are usually self-limited and respond well to the corticosteroids.

Acute Edema of the Larynx

Whether the edema is from infection, allergy, or trauma, the use of the corticoids may prevent the necessity of doing a tracheotomy.

Critical Illnesses and Toxicity

The corticosteroids can tide the patient over while antibiotic therapy and other supportive measures are carried out.

Idiopathic Midline Granuloma of the Facial Tissues

ACTH and the corticosteroids are the most effective treatment in this serious condition.

Erythema Multiforme

In many cases, lesions in the mouth are the first sign of this disease. Hence, the otolaryngologist may be the first to see the patient or may be called in consultation. Corticosteroids with appropriate antibiotic therapy give relief and shorten the course of the disease.

Pemphigus

Like erythema multiforme, the first sign of pemphigus is often lesions in the mouth. Until the era of corticosteroids and corticotropin, this disease had been considered fatal. The author has been consulted in three cases of pemphigus. All patients received corticotropin, corticosteroids and antibiotics. Two are now apparently well on no therapy, and one is free of symptoms on a maintenance dose of hydrocortisone.

Histamine Cephalalgia

If histamine and other vasodilating types of therapy fail to give relief, corticosteroids, and particularly intravenous corticotropin, will often bring about improvement. However, vasodilating therapy should be continued.

Contact Ulcer of the Larynx

Cauterization or fulguration of the lesion, followed by a short course of corticosteroid therapy, is well justified in this condition. Granulation tissue is diminished and epithelium can more readily cover the ulcer.

Laryngeal Polyps and Extensive Nasal Polyps

The following regimen is recommended in these conditions: (a) surgical removal of the polyps; (b) a short course of postoperative corticosteroid therapy; (c) elimination of etiologic factors, and (d) appropriate treatment of allergy.

Fresh Stricture of the Esophagus

Lens scarring results if corticosteroid therapy is initiated immediately. Standard treatment should also be undertaken.

Eczema and Dermatitis of the External Ear

Local use of hydrocortisone with the appropriate antibiotic is very effective in these cases.

Bell's Palsy

In early cases of Bell's palsy, we have had very good results with the use of vasodilators combined with corticosteroids and a low-salt diet.

Ménière's Disease

We are now treating Ménière's disease in a manner similar to that used for

Bell's palsy; that is, a combination of vasodilatation, corticosteroids and low-salt diet. The author has not had sufficient experience to comment accurately upon the effectiveness of this form of treatment in Ménière's disease.

Depressed Adrenal Cortices, Preoperatively and Postoperatively

This has already been discussed.

Respiratory Allergy

Local spray and mist hydrocortisone therapy is not especially recommended. We have had only moderate success with this local type of therapy.

Postsurgical Edema

In surgical cases in which postoperative edema is often a problem, corticosteroids can be effectively used. The author has found these hormones especially useful following nasal reconstructive surgery.

Status Lymphaticus

This condition is supposedly due to a hypoactivity of the adrenal cortices and may result in death from very mild stress. Death from anesthesia furnishes the most typical example. If intravenous hydrocortisone could be administered early enough, recovery could be anticipated.

Anaphylactic Shock and Other Forms of Shock

Intravenous hydrocortisone is one of the most effective measures.

Emergency Surgery on Debilitated Patients

When it becomes necessary to do surgery on debilitated patients, stress hormones should be administered just before and a few days following surgery.

Poor Stress Mechanism

It has been apparent to the author that there is a large group of patients afflicted with a poor stress mechanism. Although we have not done any stress tests, we would include in this group patients who have some or all of the following symptoms and findings:

a. Tire easily and always feel under par
b. Have low body temperature
c. Cannot tolerate dampness, drafts and sudden changes in weather
d. Are easily upset by emotional stress
e. Often have symptoms of chronic perennial allergy
f. Are much better in a warm, dry climate without sudden changes
g. Are very susceptible to upper respiratory virus infection. (In this regard, these patients usually state that they develop a sore throat and stuffy nose if in a draft, if in an air-conditioned room, if they wash their hair and go out in the cold air, or if they encounter any similar mild stress.)

If I am not mistaken, your offices are crowded with this type of patient. I believe that physiologic low dosage corticosteroid therapy would aid these patients and that with such therapy there would be no depression of the adrenal cortex. A suggested dose would be one to three milligrams of hydrocortisone twice daily. Experience alone will determine whether or not this type of treatment for this type of patient is effective and worthwhile.

SUMMARY

Some of the actions of the corticosteroids have been noted and mechanisms of actions have been discussed. Comments, in some detail, have been given on the relationship between the corticosteroids and inflammation, infec-

tion, stress, mast cells and edema. Practical aspects in relation to otolaryngology have been considered. Specific otolaryngologic conditions have been cited in which the corticosteroids are useful. Emphasis has been placed on the possible effectiveness of low dosage maintenance therapy in patients with a poor stress mechanism.

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Symposium: The Uses and Abuses of the Corticosteroids in Ophthalmology and Otolaryngology

OPHTHALMOLOGICAL ASPECTS

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MY portion of this symposium boils down to a simple plea for rational use of corticosteroids in ophthalmology. The introduction of these agents into ophthalmologic therapeutics six years ago was highly empirical. So little was understood about their fundamental actions on the eye and so much was hoped for in the new "miracle drugs" that the early clinical studies were necessarily on a trial and error basis. For lack of fundamental knowledge, no one knew just what to expect. I remember a meeting at the Wilmer Institute five years ago last spring at which I outlined some of our early experiences with cortisone and corticotropin. When I came to the subject of cataracts, I saw many jaws drop in the audience until I had explained that we had seen no effect. Then there seemed to be an almost universal sigh of relief.

Since those days we have learned a great deal about the ocular effects of corticosteroids. Although there is plenty of room for further research and much that remains to be explained, we now know enough to apply these agents in a logical way. We know the general nature of their actions in the eye and should apply this information in their therapeutic use. This knowledge has come from basic investigative work and analysis of the results found in clinical application. In retrospect, it seems unfortunate that the clinical use of these powerful agents could not have been preceded by the orderly accumulation of fundamental knowledge in a truly scientific fashion. However, we can be thankful that so little harm was done.

We now realize that the basic effect in the eye is a modification of the inflammatory process. When such modification is to the patient's benefit, these drugs should be used; when it is to his detriment, they must be scrupulously avoided. When such an effect is neither helpful nor harmful, as is so often the case, their use may be classed as an economic waste. We can say in a summary fashion that corticosteroid activity on the eye tends to suppress the cellular, humoral, and vasomotor factors in the inflammatory or allergic process. It also retards somewhat the fibroblastic process of repair. This last effect, however, is minimal in ordinary therapeutic dosage.

How can we apply these principles to the treatment of eye disease? When an inflammatory reaction is unnecessarily severe and in response to a relatively harmless stimulus, as in various allergic ocular reactions and many forms of nongranulomatous uveitis, then the use of steroid therapy is in order. In some cases of intraocular metallic foreign body, undue inflammatory response may

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be similarly suppressed. Some other excessive traumatic reactions may abate. Central serous retinopathy, if treated early, and inflammations due to drug sensitivities belong on this list, but simple degenerative diseases do not. Allergic reaction to lens protein in phacoanaphylaxis is a good example, and less severe reaction to retained lens cortex, as may occur with the use of the controversial Ridley implant, must be considered. Generally speaking, granulomatous uveitis does not improve with steroid treatment, although temporary suppression of the inflammatory reaction may give a temporary impression of improvement. There are selected cases of granulomatous uveitis in which such temporary suppression is very worthwhile, but it must be recognized and utilized for what it really is. Sympathetic ophthalmia is an outstanding exception to this rule; it is a very clear-cut indication for steroid therapy. There is, however, no evidence to date that steroids have any prophylactic value against sympathetic disease.

There are some surgical situations in which nonspecific control of an inflammatory process is very useful. The most serious of these are the emergencies in which operation is imperative in an eye which is severely or even chronically inflamed. In such instances, intensive steroid treatment may render an otherwise inoperable eye operable and ensure a much smoother postoperative course. However, the routine use of steroids in surgical procedures in which there is no definite indication is to be deplored. The benefit is negligible, if any, and the added risk is to be reckoned with.

The use of corticosteroids in infectious processes has occasioned much debate. We all feel that here the inflammatory reaction is a desirable defensive response. It seems illogical to hinder the firemen who are responding to an alarm. Whereas in the allergic state they may be responding to a false alarm and traffic congestion may be lessened by calling them off, in a true infection nothing should be allowed to interfere with the fire department on its way to attack the conflagration. There is evidence to indicate that both bacterial and virus infections fare better without steroid therapy. Perhaps the most dramatic example which many of us have seen is the lighting up of a severe dendritic ulcer under topical cortisone. Are we justified in running the risk of postoperative infection with routine, unindicated, steroid therapy? There is evidence, too, that intraocular absorption, especially of blood and lens protein, is impaired by steroid usage. The eye may be a little whiter, but the over-all recovery is interfered with. There is a seeming exception to these statements about bacterial infection in the case of certain of the bacterial conjunctivitides. When the ocular reaction is more an allergic one to bacterial products than directly the effect of microbial invasion, a combined attack including antibiotics against the organism and steroids against the effect of its products is efficient.

I am not attempting to make a list of conditions in which steroid therapy is indicated or contraindicated; my aim is rather to make a plea for consideration of the basic disease process, to be followed by the institution or the withholding of corticosteroids, depending on whether their effect on that process will be beneficent or deleterious. I must also mention briefly the selection of agents and mode of administration. Too many times we hear of steroid failures when they should have been effective, only to find on close questioning that either the dosage or the method was woefully inadequate. We cannot expect an occasion-

al drop to do the job when hourly administration is called for. Nor can we expect topical application in whatever dosage to have much effect on the posterior ocular tissues. When the deeper structures or the whole eye is involved, systemic therapy is necessary. The choice between the various steroids for topical use, and the various steroids and steroid-stimulating corticotropin for systemic use cannot yet be definitely stated. You will hear more on this subject later at this meeting, and there will be still more in the future.

Probably the best concluding remark which I can make is to remind you again of the oft-quoted statement that these agents do not "cure" anything. But I cannot conscientiously say that, without also reminding you that their judicious and rational use has a very definite place in ophthalmic therapy.

GENERAL PRINCIPLES OF THE CORRECTIVE NASAL PLASTIC OPERATION

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THE topic "General Principles of Nasal Plastic Surgery" is all inclusive, and in the time allotted only those aspects of the subject will be discussed which may be considered pertinent to a group of specialists, such as make up this audience.

ESTHETIC FACTORS

In plastic surgery of the nose we are concerned with esthetics. Proper physiologic function is essential, but in most instances this is not the primary objective of the surgery. To reconstruct a nose that will be considered beautiful or in harmony with the other features is to rekindle the age-old argument of what constitutes beauty. The answer involves a study of physical and cultural anthropology, ethnology, psychology and esthetics, the ramifications of which may lead to an impasse. However, we may allow ourselves certain elusive generalities by which to gauge the terms "beauty," "ideal" and "normal," and to emphasize some known facts, one of which was aptly stated long ago by Francis Bacon when he said, "There is no excellent beauty which hath not some strangeness of proportion."

The physical anthropologist has devised a standardized system of facial measurements to classify the races and types of man, and to aid him in tracing their origins and migrations. Thus, the field of anthropometry developed. The measurements and landmarks adopted as standards are also of value in plastic surgery of the face, for they supply the surgeon with some basis for determining what is considered normal. The ideal norm, however, is an abstraction and is rarely found in any individual.

Anthropometry and the projection of esthetic angles for determining the various facial angles are, therefore, of value to the surgeon only as a rudimentary or basic formula. There are multiple factors involved in studying the face from an artistic viewpoint. As Sir Thomas Brown stated, "It is the common wonder of all men, how among so many millions of faces, there should be none alike." Ability to distinguish people by their facial characteristics is a matter of self-training and the high development of man's innate artistic sense. In all probability, we distinguish faces by variations in facial expression as well as by skeletal differences.

The anthropometrist utilizes certain basic formulas and measurements which may be found detailed in textbooks of anthropology and anatomy. A few of the important measurements and landmarks are here presented. Designated points in the midline of the face are labeled as the *trichion,* located in the center of the forehead at the hairline; the *nasion,* at the frontonasal suture line; the *subnasale,* a point at the root of the nasal spine; and the *gnathion,* the anterior-most point on the symphysis of the mandible. If horizontal lines are

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drawn through these points, the face is normally divided into three equal parts. If, in profile view, another line is projected from the upper rim of the external auditory canal (the *auricular point*) to the lower rim of the orbit or *infraorbital point*, a line known as the *Frankfort horizontal*, or Reid's base line, is formed. This line divides the face into two equal parts from trichion to gnathion (fig. 1).

leptoprosopic (narrow), *euryprosopic* (broad), or *mesoprosopic* (intermediate).

The nasal index is derived by comparing the length of the nose (from nasion to nasospinale) with the maximum width of the pyriform aperture. A nose having a nasal index under 47 is *leptorrhine* (narrow); above 53, *platyrrhine* (wide); and if it lies somewhere be-

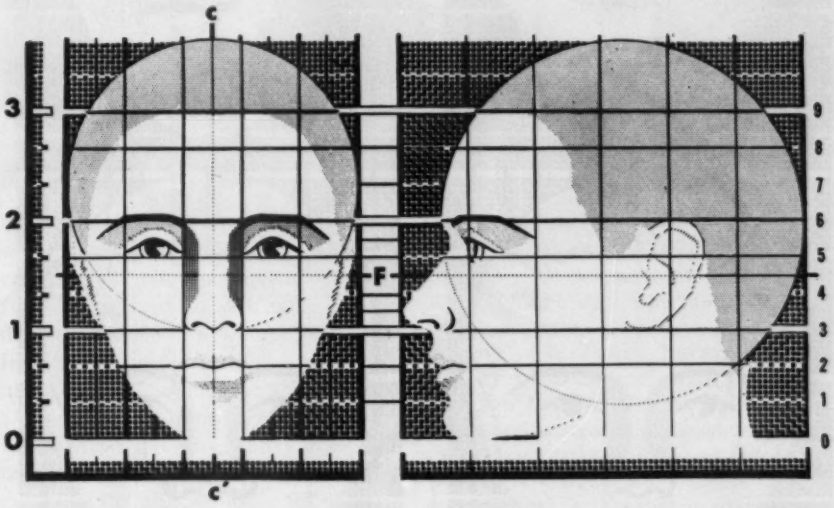

FIG. 1—Anthropometric measurements of the "normal" or "ideal" face. Points in the midline of the face (c to c') are the trichion (3), nasion (2), subnasale (1), and gnathion (0), dividing the face into three equal parts. Frankfort horizontal line (F) divides face in half. Further subdivisions of each space into thirds both horizontally and vertically reveal the eye to be a single square, the face to be five squares in width, and the space between the eyes to be one square wide.

Anthropometric measurements of the head include the cephalic index, the facial index, and the facial angle. By applying the cephalic index, we are able to make the following classification: broad heads or *brachycephalics;* long heads or *dolichocephalics;* and the intermediate types or *mesocephalics.* Facial form is classified by comparing length and breadth (nasion-gnathion length and bi-zygomatic breadth); the face is

tween, *mesorrhine* (intermediate). Measurements are also made of the nasofacial profile angle, the nasolabial angle, the facial angle, and the glabellar angle.

Many of the basic observations on the divisions of the face were originally described in the fifteenth century by Leonardo da Vinci in the section of his notebooks entitled "Of the Parts of the Face." In the accompanying illustrations (figs. 1, 2, 3, 4, 5, and 6) a scale of ref-

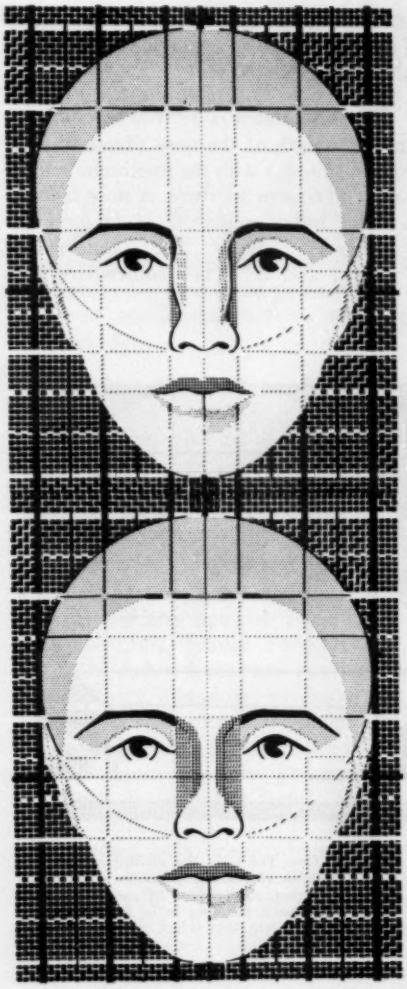

FIG. 2—Photostatic copies of "ideal norm" with disproportion of one feature reveal a change in expression and appearance. Upper figure illustrates the change accomplished by an abnormally wide nasal bridge; in the lower figure the change results from a narrow bridge.

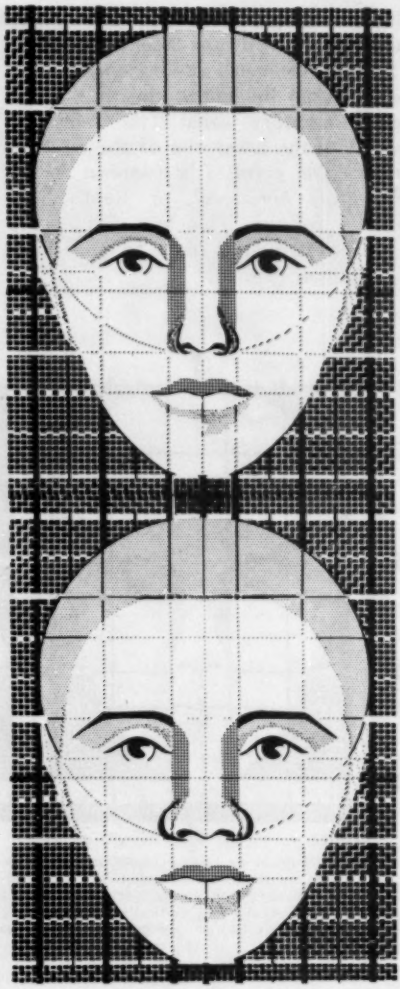

FIG. 3—Effects produced on facial appearance altering the nostril width from the "norm." Upper figure illustrates unusually narrow nostrils, and lower figure illustrates abnormally wide nostrils.

erence was designed to facilitate the measurement of proportions. It consists of a series of small blocks, all equal in size, spacing and grouping. We use the accepted statement of Leonardo da Vinci, "The space from the chin to the beginning of the bottom of the nose is the third part of the face; and equal to the nose and to the forehead," and have set up our blocks accordingly. After dividing these three groups into equal spaces,

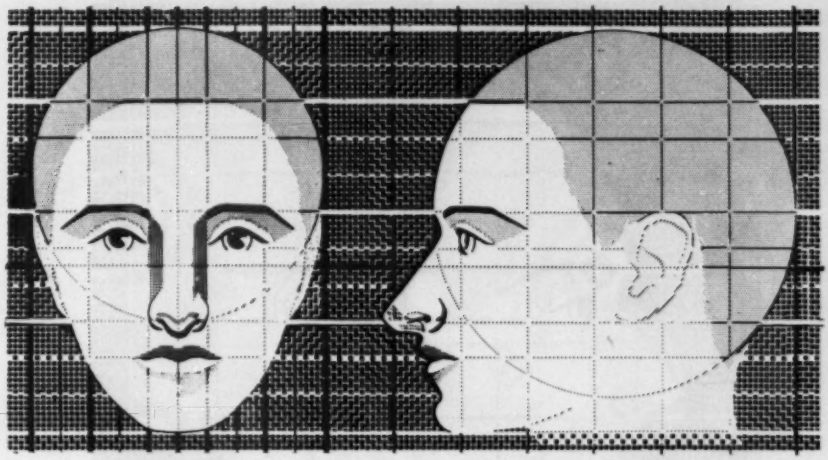

FIG. 4—Alteration in the length of the nose and the effect thereby produced on the "norm." A disproportion in one feature will change the appearance considerably; however, a disproportion of two features, such as a nose and chin, radically changes the expression. A single disproportion in two planes, e.g., a long nose associated with abnormally wide nostrils, will not alter the appearance as markedly as a two-feature change.

we are immediately led to certain observations. Although this spacing is equal, it is not monotonous, for the forms lying next to each other occupy different numbers of spaces. Nevertheless, the proportions are equal, indicating a certain regularity in size, shape and position of forms. For example, the forehead occupies one entire group, or one third of the height of the face. The eye from the brow to lower lid fills one third of the height of the nose, which is the height of the forehead, or one third of the height of the face. Thus, one could say that the forehead is to the face as the eye is to the nose; or, three is to nine as one is to three. Or, again, one can observe that the upper lip is to the lower lip and the chin as the height of the nostril is to the remainder of the nose; or, one is to two as one is to two. In this manner one can divide and subdivide and compare indefinitely. It is rather interesting to notice that the eye tends to group a large area with a small one, and to compare this grouping with other similar groupings of large and small areas.

The midline is the most obvious division of the front view. In the midline of the face, the measurement used is the width of one eye, for "the space between the eyes is equal to the size of one eye" (da Vinci). Furthermore, by the size of the eye, the face is divided into five equal vertical sections. These may again be equally divided and mathematical comparisons made, as before, to prove pleasing points of interest. An example would be that the ala nasi occupy the space between the two inner canthi, or one eye's breadth.

All this leads to the conclusion that the face is beautiful in the degree to which its features are regular, that variety in it is infinite, and that there are no absolute rules by which beauty may be determined.

The matter of single exaggerated disproportions and the way they alter the appearance of the otherwise normal features of the face is shown in the illustrations here presented, which depict them as overlays on the drawing of the ideal norm.

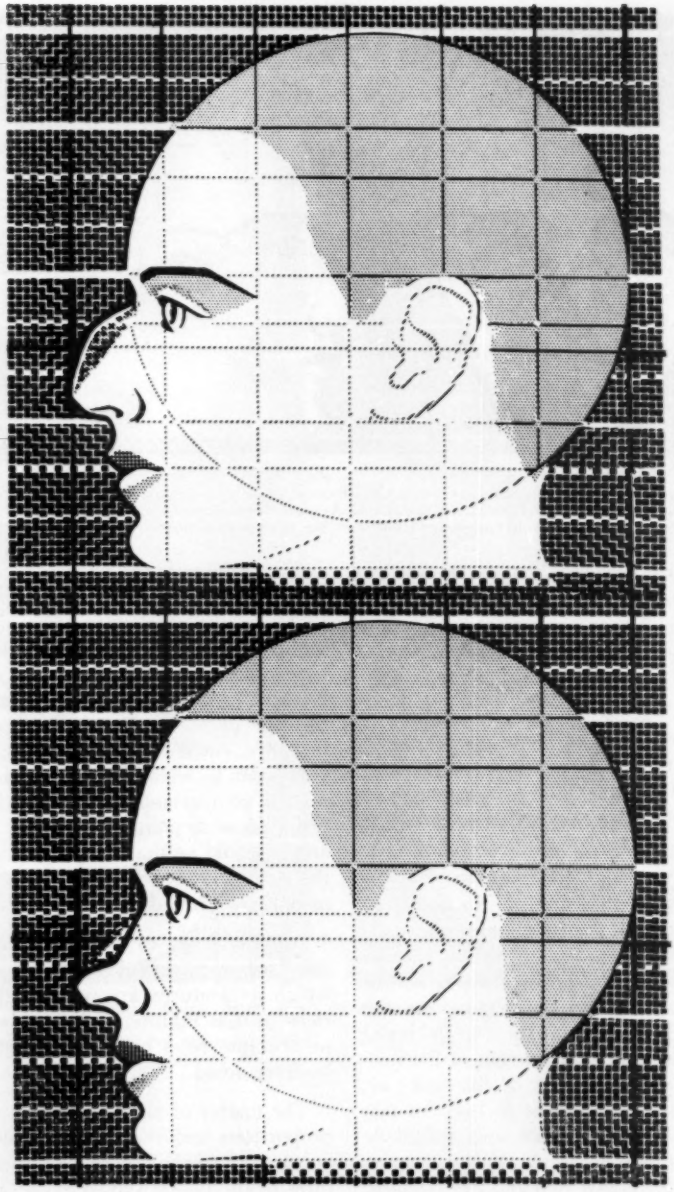

FIG. 5—Disproportionate height or depression of nasal dorsum and the resulting effect on the "norm."

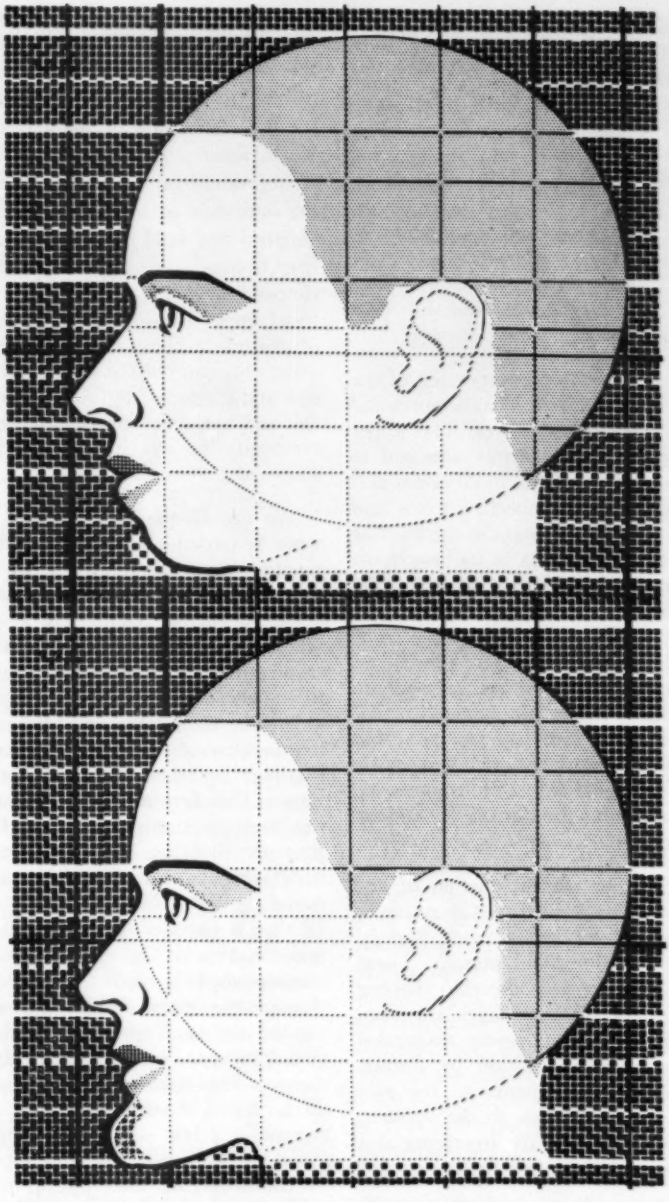

FIG. 6—Disproportion of the chin from the "norm" and the alteration in appearance.

ANATOMICAL FACTORS

An artistic anatomical concept must be developed by the plastic surgeon when he approaches the study of nasal anatomy. He visualizes the nasal structure not only as static bone and cartilage but also as muscle tension, skin texture, relationship to surrounding structures, and the effect of the related and the interrelated structures on the shape of the nose. Furthermore, this concept divides the nose into an upper or *immobile* portion, and a lower or *mobile* portion.

The *immobile* or upper portion of the nose is composed of the nasal bones and the upper lateral cartilages. The upper lateral cartilages are firmly attached to the undersurface of the nasal bones and maxillas by dense connective tissue and are fused with the septum in the midline except for a small area at its lowermost end. The nasal bones are supported by the adjacent frontal processes of the maxillas, by the nasal spine of the frontal bone, and by the septum below. Covering these structures are periosteum and perichondrium, the procerus and transverse nasali muscles. The overlying superficial fascia or panniculus adiposis is thin with scanty fat and fibrous tissue, thereby allowing great mobility of the skin over this area.

The lower or *mobile* portion of the nose is composed of the two alar (lower lateral) cartilages and a few sesamoid cartilages superiorly and laterally. These cartilages are curved, thereby shaping the nares. The alar cartilages are more or less free floating, being suspended and maintained in position by fibrous and muscular attachments to the two upper lateral cartilages, to the septum, to each other, and to the overlying and surrounding skin.

The shape of the nasal tip is basically formed by the alar cartilages. However, depending upon the thickness of the skin, the amount of subcutaneous fat, areolar tissue and the activity of the sebaceous glands, the configuration of the tip may vary considerably from the basic structure of the alar cartilage. Furthermore, the form of the nasal tip is dependent on its relative position to the immobile or fixed structures, which suspend and hold the tip in position by firm fibrous attachments. A long, short, elevated or depressed septum, long or short upper lateral cartilages, the shape of the nasal bone and maxillary processes, the spine of the maxilla, the direction and tension of the surrounding muscles and fibrous connective tissue are determining factors in the position and shape of the nasal tip.

We are frequently surprised to note what remarkable changes in shape and position are accomplished by simply freeing the tip from the surrounding tissues. A further change is also noted when the last remaining suspensory attachment of the tip is freed by dissection of the alar cartilage from the enveloping skin. The skin at the nasal tip is immobile because of its firm adherence to the cartilage by dense fibrous connective tissue. This firm union aids in suspending and positioning the tip; thus, to properly mobilize it, the alar cartilage is detached from the overlying and surrounding skin. Frequently this may be all that is required to change the shape and direction of the tip. This is usually accomplished toward the end of the rhinoplastic operation. In thus mobilizing the alar cartilages, muscle fibers are also detached. The muscles involved are the nasalis (transverse and alar), the dilator nares, the depressor septi, and occasionally a few slips of the caput angulari of the quadratus labii superioris. To completely mobilize the tip in a very dependent or long nose, it may be necessary to do a wide blunt dissection of the skin down to the orbicularis oris and

laterally to the nasolabial fold, thereby freeing portions of the quadratus muscle (figs. 7 and 8).

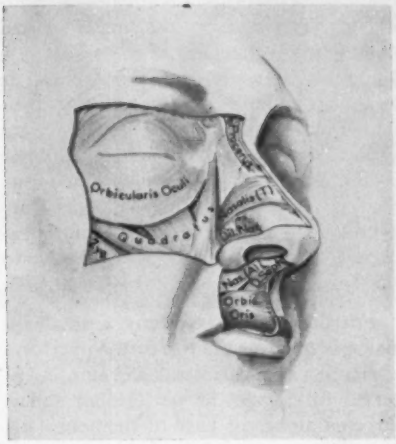

FIG. 7—The mimetic muscles of the face, important in rhinoplastic surgery.

The muscles which surround and envelop the nose are part of the mimetic muscles of the face, which have no real fascial covering such as cover the skeletal muscles of the body. Instead, they are found below and in the panniculus adiposis or superficial fascia, and the fibers are inserted directly into the dermis and cutis of the skin. This arrangement of muscle fibers is a direct outgrowth of the highly complex development of speech, whereby small muscle fibers were needed superficially to allow multiple variations of facial movements. A thick fascial covering, such as is encountered in the nonmimetic muscles, would leave the face blank and expressionless.

A thorough knowledge of the artistic anatomy of the nose and face is essential, and since there are so many variables in this type of anatomy, it is difficult to standardize the rhinoplastic operation. Constant improvising and changes in technique to fit each individual patient are essential. Some fundamental techniques will be described, and my reasons for using them given.

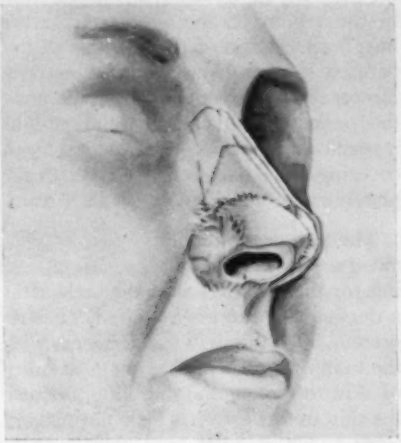

FIG. 8—The bony and cartilaginous structure of the nose and the fibrous attachments of the alar cartilages to surrounding structures and to each other.

TECHNICAL ASPECTS

To gain access to the nasal dorsum, the nostril is retracted upward and an incision made just above and along the whole projecting rim of the upper lateral cartilage with a Bard-Parker no. 15 knife blade. With a blunt narrow scissors, the incision is spread and the skin over the upper lateral cartilage is elevated. A wide, slightly curved Joseph double-edged knife is then introduced and moved laterally to cut any remaining fibrous tissue, and the periosteum is incised at the edge of the nasal and maxillary bones. This wide incision is necessary in order to cut the fibrous attachments between the upper and lower lateral cartilages (fig. 11, A). The procedure is repeated on the opposite side. A Joseph periosteal elevator is then inserted, and the periosteum, procerus muscle and skin are elevated as one con-

tinuous sheet over the whole of the nasal dorsum. The undermining should be rather wide, and the elements above the nasal bones and the frontal process should be completely free. A portion of the periosteum usually remains adherent in the region of the intranasal suture line, but elevation of this area is not imperative if a bony hump is to be resected. However, in correction of a saddle nose, the periosteum in this area should be meticulously elevated to furnish a thick covering and a bare bony surface for the placement of the implant or transplant.

The periosteum and the skin are elevated as one unit to allow a thick covering for the cut surface of the bone after a dorsal projection is removed. If periosteum and muscle are sacrificed with the hump, there is always the possibility of skin retraction and dimpling, because the skin in this area has little fibrous and fatty tissue. I have seen this happen, and the correction is difficult, necessitating careful elevation of the skin and the insertion of a cartilage graft over the dorsum to prevent a recurrence of the dimpling. Furthermore, a thick covering may sometimes camouflage a slight irregularity over the dorsum.

The transfixion incision is then made with a Joseph button-end knife and is kept as close to the septum as possible, to prevent cutting any of the membranous septum. The membranocutaneous septum is thereby preserved and prevents retraction or rigid scarring of the columella. The area over the nasal spine is completely undermined to mobilize the tip and to expose the nasal spine. If elevation of the nasal tip is not indicated, a complete transfixion is unnecessary.

The removal of a dorsal projection or hump is accomplished with the Joseph bayonet saw. However, if the bony hump is small and most of the projection is cartilaginous, I frequently use a rasp for the bone and a button-end knife or a scissors to cut down the cartilaginous portion. Some men prefer a chisel, and others, the Kazanjian ronguer for the hump removal. It is a matter of individual preference, and the method used makes little difference if the result is a smooth and evenly leveled dorsum. The amount of hump to be removed is estimated by making sketches on the photographs and by drawing with methylene blue directly on the skin, but in the final analysis it is determined by the surgeon's artistic judgment. The other features must be considered, together with the body build of the patient (fig. 9).

For the lateral osteotomy, a small incision is made at the rim of the pyriform aperture. The periosteal elevator is inserted to engage the periosteum and is directed along the base of the bone (fig. 10). The undermining of skin and periosteum should be fairly wide to prevent a retraction of skin along the line of infracture.

The fracture line should be as low as possible to allow a large lateral wall for infracture, and to prevent a step-like deformity. If the base of the nose is unusually wide, a smaller amount of hump should be removed, because the infracture may cause a partial falling-in or depression of the nasal bones after they are moved medially. The remaining projection of the septum is then trimmed with a scissors and rasp to the new level of the lateral walls. If the base is especially wide, the lateral walls may, after infracture, drop to a low level and result in a moderate saddle of the dorsum. This may be an unavoidable sequela to the proper narrowing of the bony base, but the saddling must be corrected by the reinsertion of the hump, if a hump was removed, or by a bone or cartilage transplant.

The osteotomy may be accomplished with saws or an osteotome, the bone be-

FIG. 9—Planning a rhinoplastic correction by the use of sketches made on the reverse side of the preoperative photograph as it is held up to a light or a shadow box. (a) Before surgery. (b) After surgery. (c) Preoperative sketch to determine the amount of tissue to be removed. (Becker, Oscar J., Principles of Otolaryngologic Plastic Surgery, Rochester, Minn., American Academy of Ophthalmology and Otolaryngology, 1952)

ing sectioned along the base and just medial to the lacrimal crest. I prefer the osteotome, but if a saw is used, it is withdrawn after the bone is almost completely sectioned, an osteotome is inserted along the saw cut up to the nasofrontal articulation, and the bone is infracted by rotating the osteotome inwardly (fig. 10). If the fracture is not complete near the nasofrontal juncture, the osteotome is inserted through the original incision made at the limen vestibuli, the fracture line at the nasofrontal articulation is engaged at an angle, and the fracture is completed with a few taps of the mallet. Occasionally a thick

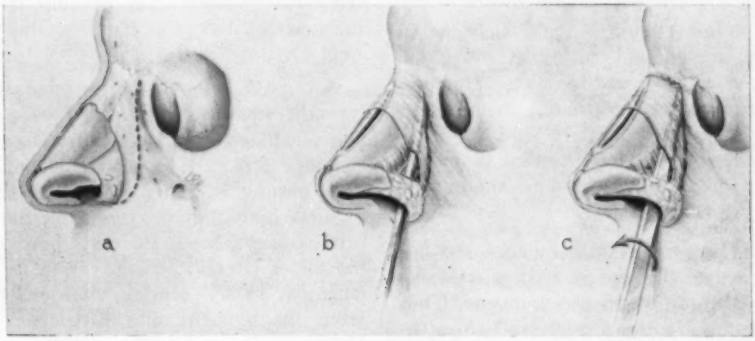

FIG. 10—(a) Proposed line of infracture along frontal process of maxillary bone. (b) Osteotome or saw may be used for sectioning the bone. (c) Osteotome is used to complete the fracture line and is rotated inwardly to infracture the bone. Complete mobilization is then accomplished by finger pressure on the bridge along the fracture line. (Becker, Oscar J., Principles of Otolaryngologic Plastic Surgery, Rochester, Minn., American Academy of Ophthalmology and Otolaryngology, 1952)

spine of the frontal bone will prevent a proper infracture; in these cases the removal of a wedge between the bones is necessary.

If the radix nasi, or root of the nose, is unusually high, a section of bone is removed by wedging it out with an osteotome. In this latter maneuver one must be extremely careful not to engage the bone too deeply, otherwise a much larger section will be dislodged than anticipated; instead, the osteotome is used in a shaving fashion. If the root of the nose does not appear high before the infracture, it may become slightly elevated after moving the lateral walls together and should be lowered by rasping it or by shaving it with an osteotome. There frequently is a slight depression of the bone at the fracture line; it occurs just below the radix, and thereby places the radix on a slightly higher level than the newly positioned lateral walls. (See this area in figs. 10, C, and 15.) At this point it is also well to palpate the dorsum or inspect it with an Aufricht or Becker nasal speculum, because a small portion of septum may project above the nasal bones. A scissors, Joseph right-angle knife or a rasp may be used to lower the septum to the level of the infractured lateral walls.

The bones must be completely mobile from side to side and must be approximated in the midline. The fractures must be complete, obviating the necessity of clamps and splints to hold the bones together. The external splint is applied only for protection and to aid in preventing hematoma.

The upper lateral cartilages are left attached to the septum if they were not cut when the hump was removed. They help stabilize the septum and, to some degree, prevent the nasal bones from slipping down after infracture. If they are intact, the intranasal packing may be placed against them, for they help in stabilizing the dorsum. If the hump is large, the upper laterals are almost always free from the septum after the hump removal. If the nose is excessively long, it is necessary to free them to remove the excess. However, in many cases it is possible to leave some attachment to the septum, even if it is only mucoperichondrial.

The nasal tip is corrected as one of the final steps of the rhinoplasty. After the immobile upper portion of the nose is corrected and the fibrous tissues which suspend the tip have been cut, the tip will frequently assume a new shape and position because of the change in relation to the rest of the nose. Further changes will be noted after complete mobilization of the lower lateral cartilages from the overlying skin.

An incision is made along the rim of the ala, following the lower border of the medial and lateral crura of the lower lateral cartilage. The incision is made a little inside of the cartilaginous rim, thereby leaving a small cuff of skin along the ala. This serves a twofold purpose; it allows a small overlap of skin to help hold the alar cartilage in position when it is replaced, and it also prevents any scar contractures at the nostril border, which may develop if the incision is made too close to the rim (fig. 11, B).

A curved Joseph scissors is inserted into the incision and spread over the alar cartilage, completely freeing the cartilage from the overlying skin. The undermining is rather extensive, thereby detaching the cartilage from its fibrous connections to the outer border of the upper lateral cartilage, from its attachment to the septum, and medially from the opposite alar cartilage (fig. 11, C).

The alar cartilages can now be pulled down and exposed almost in their entirety. The lateral crus is still attached

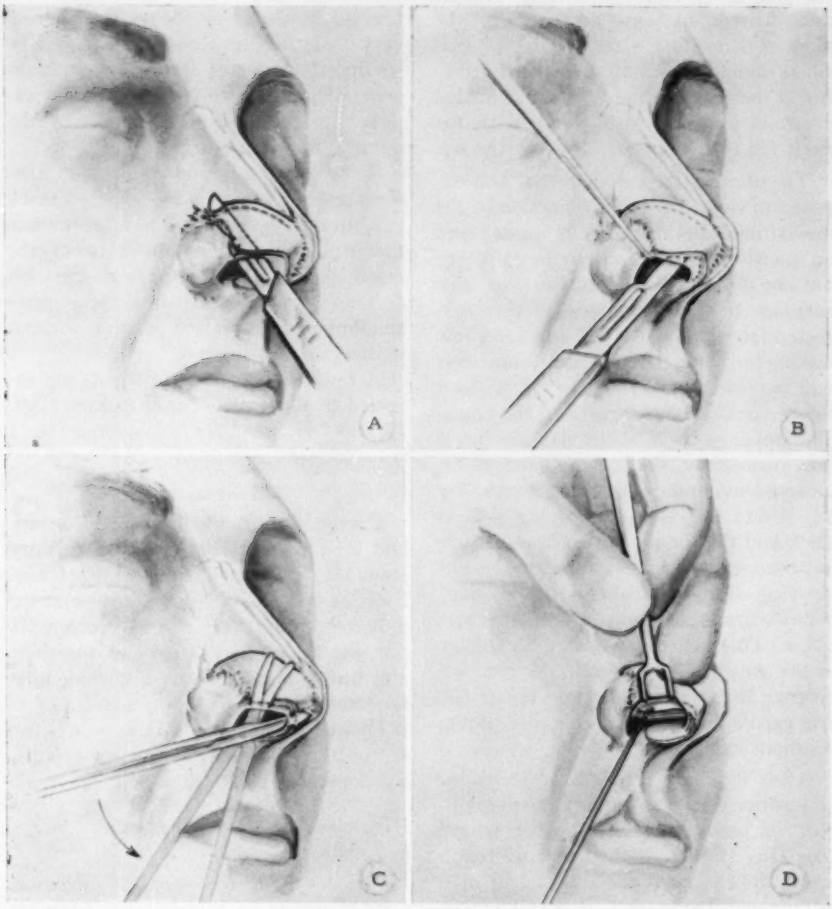

FIG. 11—(A) Original incision just above the projecting rim of the upper lateral cartilage extended to cut fibrous attachments between the alar and upper lateral cartilage. (B) Incision along the rim of the ala, following the border of the medial and lateral crura. The incision is made inside the cartilaginous rim, thereby leaving a small cuff of skin along the ala. (C) Scissors inserted through rim incision and spread over the alar cartilage, completely freeing the cartilage from the overlying skin. (D) Alar cartilage is delivered.

on its lateral surface and the medial crus at its inferior border. The cartilages are still attached to the intact underlying vestibular skin (fig. 11, D).

At this point, the nose is placed in the position we ultimately wish it to retain. If the septum is long or if a large nasal spine is present along the floor, it is corrected by removing a section of the projecting lower end of the septum and/or the spine of the maxilla. With the nasal structures completely mobilized, we are in a better position to evaluate whatever changes should be made in the alar cartilages. Usually the upper third or half of the lateral crus is found to be heavy, giving the nose a bulbous appear-

ance. Direct markings are made on the skin to determine what amount of cartilage should be removed. Some narrowing at the angle of the lateral and medial crura is also indicated, along with the need for projecting or lowering the tip.

The alar cartilage is delivered and exposed to view, the dome (junction of the medial and lateral crura) is located and an incision made through the cartilage but not through the vestibular skin. The cartilage of the lateral crus is then dissected from the vestibular skin for a few millimeters (fig. 12, A). This maneuver will narrow and project the tip without the removal of cartilage from the angle. The upper portion of the lateral crus is now incised and the bulbous portion removed, leaving the skin lining intact (fig. 12, B and C). If the overlying skin is thick and the nasalis transversus muscle is prominent, a small section of the underlying skin, muscle and fibrous connective tissue is removed with the cartilage. This will allow more shrinkage in the area and will permit a firmer adherence between the alar and upper lateral cartilages to develop because of the resultant raw area apposition.

After the alar cartilages are replaced in position there is usually an overlapping of the medial crus by the lateral crus (fig. 12, D). If the tip projects too much, the excess of the lateral crus may be trimmed. However, it is advantageous in most cases to leave this projection because it gives the tip a slight elevation above the dorsum, which is esthetically desirable.

The septum is again inspected to see if any further shortening is needed to help in elevating the tip. By waiting until this stage of the operation, the danger of overshortening the septum is avoided. The upper laterals are also inspected at this time; if any excess is present, it is also removed. It is surprising how little excess upper lateral cartilage is present. I find that if enough of the upper portion of the alar cartilage is removed, very little of the upper lateral need be sacrificed. This results in a better appearance, aids in preventing scar formation, and protects the function of the internal nasal aperture.

To close the septal-columellar incision, a few catgut or loosely tied black silk sutures are inserted to approximate the septal mucosa to the skin of the columella. The sutures have no real effect in elevating the nose; the nose should be in the desired position without tension on the sutures.

A few photographs of patients are inserted to illustrate definite points (figs. 13 and 14).

DEVIATED NOSE

Correction of the septal deformity and of the external nasal deformity should be combined whenever feasible. Since the procedures are interdependent, a better evaluation of the problem is possible when they are done together, and the patient is saved considerable time and discomfort.

Dislocations and deviations of the septum may be classified in two groups, developmental and traumatic.

Developmental Dislocations and Deviations

The developmental types of deviation may be either on a congenital basis or due to a disproportion in the development of the premaxilla, vomer and ethmoid, with downward encroachment of the cranial cavity.

In this type of septal deformity, the cartilaginous septum is dislocated and deflected, and there is similar deviation of the underlying bony septum. The cartilage is separated from the bone by a smooth layer of perichondrium and periosteum. Because of this smooth sliding surface between them, the freeing of the cartilage at its junction with the underlying bone may be insufficient to

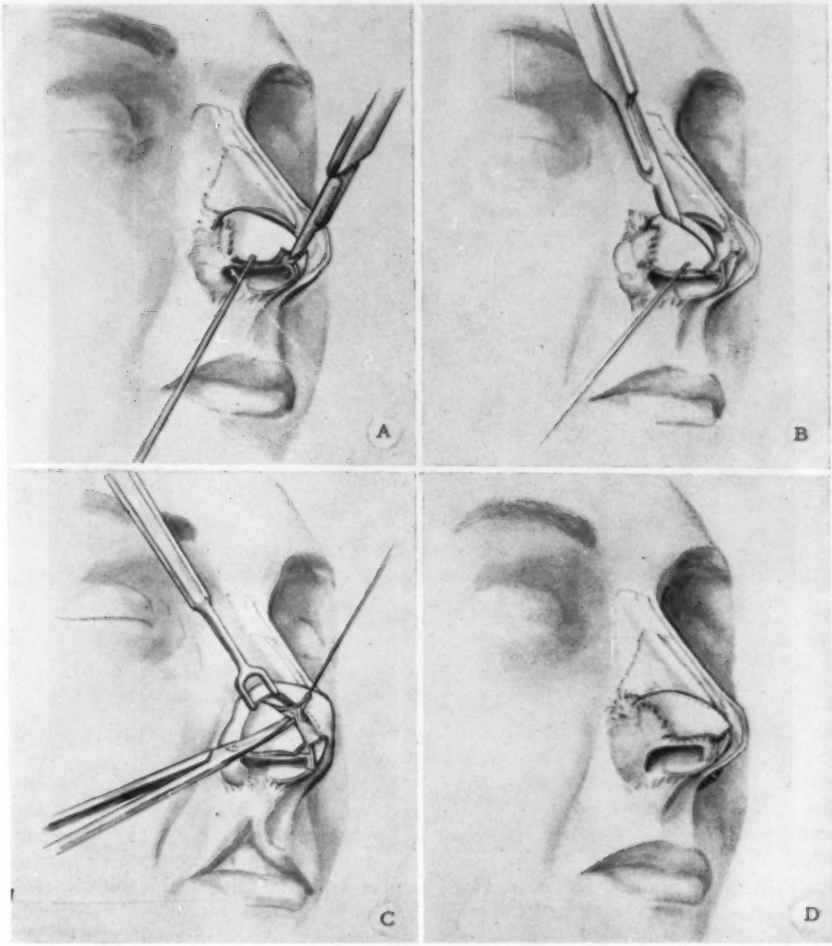

FIG. 12—(A) The alar cartilage is delivered and exposed to view, the junction of the medial and lateral crura located, and an incision made through the cartilage but not through the vestibular skin. The cartilage of the lateral crus is dissected from the vestibular skin. (B and C) The upper portion of the lateral crus is incised and the bulbous portion removed, leaving the skin lining intact. (D) After the alar cartilages are replaced into position, there is usually an overlapping of the medial crus by the lateral crus. If the tip projects too much, the excess of the lateral crus may be trimmed.

prevent the septum from slipping back into the original position of dislocation. Moreover, the gradual pull of the shortened mucosa on the side of the dislocation may gradually shift the cartilage on its smooth bed back to its dislocated position.

To prevent such recurrence, the cartilage should not be cut at its junction with the vomer and maxillary bone but should be shifted as one unit with the bony septum. This is accomplished by completely fracturing the maxillary spine and crest and the lower end of

FIG. 13—(A) Example of a long nose, high dorsum and large nasal spine. The long septum and the nasal spine are especially noticeable in a smiling picture, where a break occurs just above the lip. (B) After correction of the dorsum, extensive undermining of the tissues to mobilize the lower portion of the nose, removal of the nasal spine, and shortening of the septum and upper lateral cartilages, the nose assumes a more proportionate appearance in relation to the other features.

the vomer from the floor of the nose, and shifting the entire lower end of the septum to the midline. Complete fracture through the bone prevents recurrence of the deformity, because the bone, unlike resilient cartilage, has no tendency to move after it has been fractured and set in position. Equally important is the fact that the fracture along the floor leaves the smooth sliding perichondral-periosteal surface undisturbed.

To ensure further the replacement of the septum in the midline and to prevent possible scar contracture or pull due to shortening of the mucosa, which results from shifting of the bone and cartilage to the midline, an incision is made in the mucous membrane along the floor of the nose and lateral to the region of the fracture line. A free graft of mucous membrane or, better, a composite graft of mucosa and cartilage is placed over the raw area. The graft "takes" rapidly, and by the sixth or seventh postoperative day the nasal floor is completely healed. Tissue for grafting may be obtained from the shortening of the upper lateral cartilages and used as two grafts, or, if the septum is shortened, the removed section of cartilage with attached cutaneous-mucosal surface on one side may be utilized as an alternative composite graft along the floor of the nose.

After fracture through the bony septum, the septal cartilage should be cut vertically through its height, and, when necessary, narrow sections should be removed at the bends in the cartilage. The vertical incisions are carried down into the bone to join the fracture at the base. This should be accomplished with-

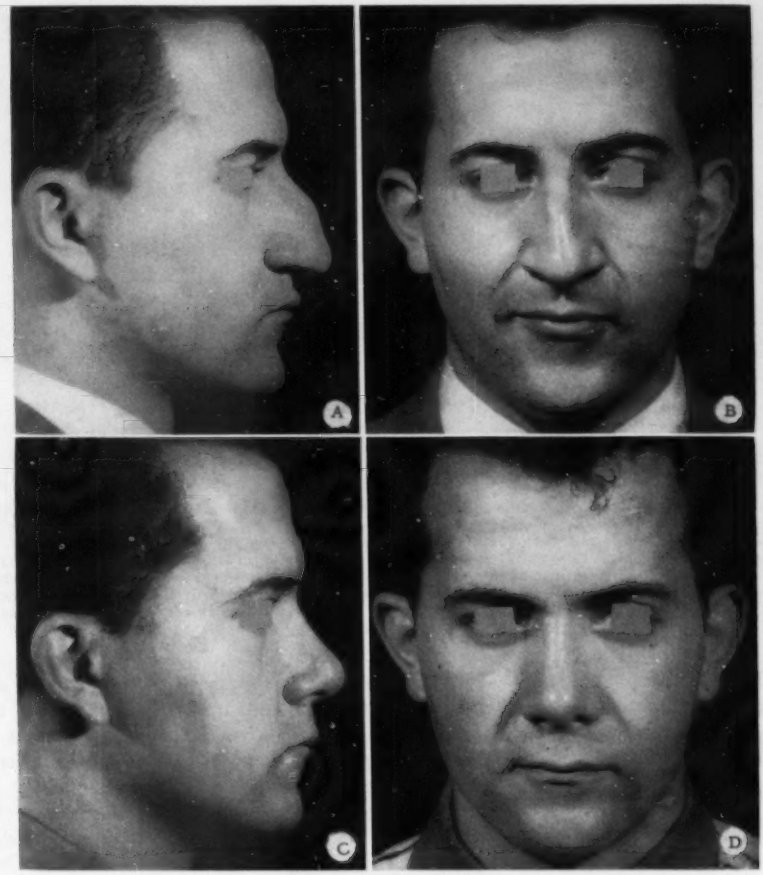

FIG. 14—(A and B) Long humped nose with deviation of septum and upper lateral cartilages, wide alae and slight retraction of the columella. (C and D) Dorsum corrected by removal of hump; the septal and upper lateral cartilages are replaced in the midline according to the method outlined under the deviated and dislocated septum. Elevation of the tip by extensive undermining, removal of a portion of upper lateral and upper border of alar cartilage. No septal shortening was needed to elevate the nose. Replacement of the septum in the midline lowered the columella, which should normally extend beyond the alar margin. Base of the ala narrowed by excision of a wedge of skin and fibrous fatty tissue.

out disturbing the perichondrium and mucosa on the opposite side. The perichondral attachments of the opposite side are left intact, not so much to ensure the viability of the cartilage but to help prevent the anterior segment of cartilage from slipping back or down after it is cut. The perichondral and mucosal attachment thus acts as an adherent plate to the cartilage. The mucosal attachment on the opposite side of the anterior dislocation is disturbed only when it is desirable to thin down thickened cartilage or a ridge, usually along the floor in the region of bone and cartilage approximation. The deflected posterior portion of the septum may be removed according to the indications.

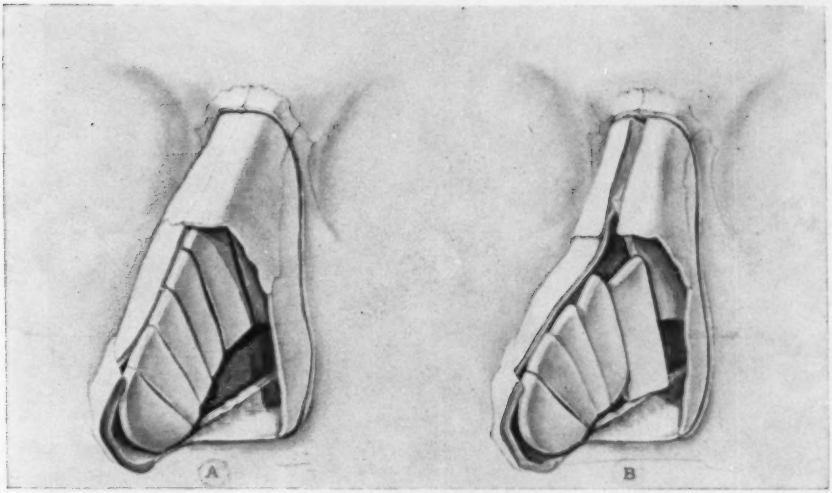

FIG. 15—In the combined rhinoplasty and septal operation, when the removal and cutting of the septal cartilage is indicated, extensive procedures on the dorsum may result in a depressed nose. If the upper lateral cartilages are detached from the septum in the midline and/or the bony arch of the nasal bones broken, the septum will slip downward and backward, resulting in a partial saddling. A lateral freeing of the upper laterals (rather than detachment in the midline) and mobilization of the nasal bones without breaking the arch will avoid this danger. If a large hump has been removed, it is safer to cut the septum and fracture it into position without the removal of any cartilage. More extensive septal correction may be done if the hump is small, thereby leaving most of the upper lateral cartilages and nasal bones intact in the midline.

The upper lateral cartilages should, if possible, be left attached to the septum to help maintain the septum in position and to prevent a shifting back of the anterior segment of cartilage. The lateral freeing of the upper lateral cartilages will allow their mobilization without disrupting their central septal attachments. Furthermore, the union of the nasal bones in the midline should not be disturbed, since they may prevent the septum from slipping backwards (fig. 15). If a large hump has been removed and the attachments of the septum to the undersurface of the nasal bone have been disturbed, it is best not to do much resection of the septum but rather to cut the septum anteriorly and fracture the elements into position.

In the *traumatic type* of septal deformity, in which there is buckling, twisting and reduplication of the septum, quite a different problem is presented. Here the nose is usually depressed, and a radical removal of the septum followed by a dorsal implant of bone or cartilage is necessary. Some cases which are not depressed may be handled much like the developmental type with modifications. These are discussed in detail in the "Manual on Otolaryngologic Plastic Surgery" published by the American Academy of Ophthalmology and Otolaryngology.

When the septum is deviated without an anterior displacement and without causing an external deviation of the nasal dorsum, a submucous resection is done just before the completion of the rhinoplasty. The mucosal flap is elevated on the side of the deviation through the rhinoplastic transfixion incision. The septal resection should be conservative, and excessive removal of bone or cartilage is rarely indicated. Only that part which is deflected should be removed.

PRINCIPLES IN THE PRIMARY REPAIR OF THE CLEFT LIP

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TREATMENT of the unilateral and of the bilateral cleft lip is usually discussed as though the two conditions present almost identical problems in repair and equally predictable results. Such a concept is erroneous. When compared to the difficulties encountered in the care of a bilateral cleft, those presented in the unilateral cleft are less treacherous. At the present time unilateral cleft lip repair is fairly well standardized and a satisfactory result is expected in nearly every case. On the other hand, there is still no uniformity of opinion as to the handling of the bilateral cleft.

It might be informative to review briefly the history of cleft lip repair. The first attempts appear to have been directed almost exclusively toward closure of the lip defect.[10] In procedures that were done with only this aim in mind (fig. 1), there was usually little attention paid to the accompanying nasal deformity, and a result similar to that illustrated in figure 2 was all too frequent. In addition, the lip repair fell in a vertical straight line so that scar contracture during healing often resulted in a notching of the vermilion substance (fig. 3). Attempts to avoid this notching led to lip repairs done in such a manner that the suture line pursued a gentle curve[11] (fig. 4). This was a step toward decreasing the frequency and degree of the "whistling deformity," but the malformed nose still received too little at-

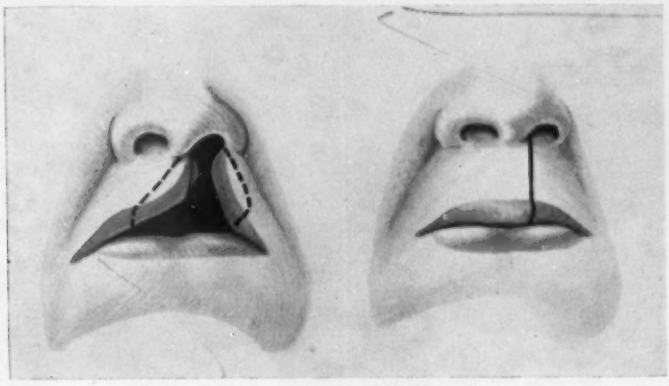

FIGURE 1.

From State University of Iowa Hospitals, Iowa City, Iowa

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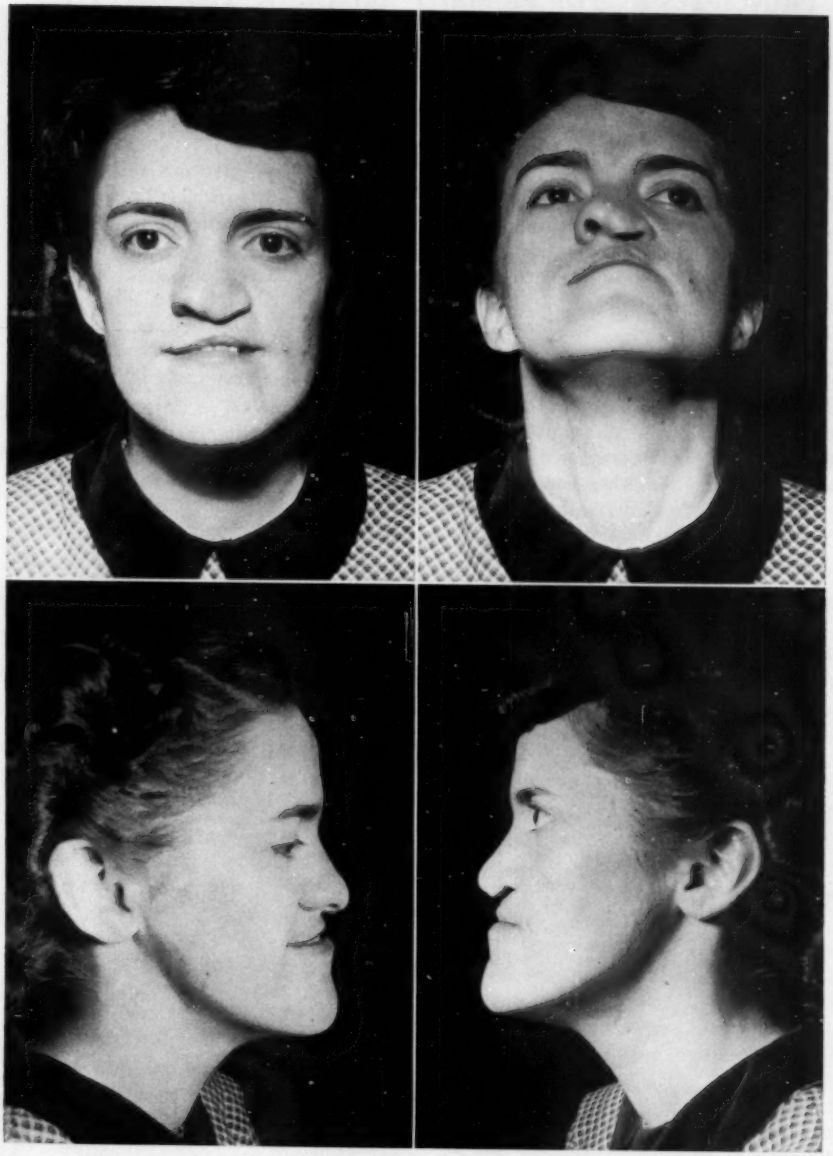


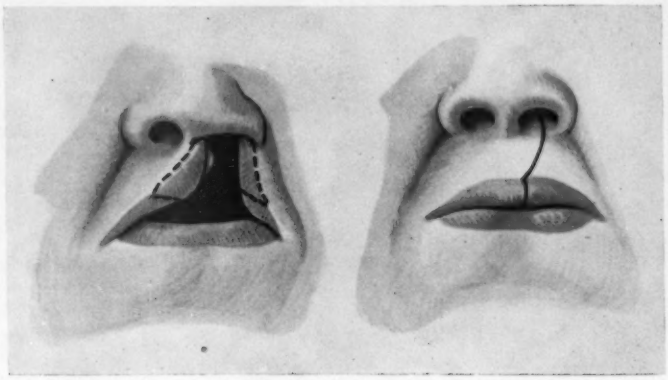
FIGURE 2.

FIGURE 3.

tention. It was not until the staggered line of repair[8] (fig. 5) became common practice that vermilion notching could be almost entirely avoided. At the present time most surgeons employ the broken suture line and have gradually turned more and more attention to the nasal malformation and the shape of the repaired lip.

Two procedures in common use today for repair of the unilateral cleft lip are those recommended by Brown and McDowell[4] and by LeMesurier.[6] These two types of operation are similar in that the repair line is a broken one, the nose receives a great deal of attention, and tissue in the lower portion of the lip is preserved in order to prevent a tight vermilion border. They differ mainly in that the method advocated by Brown and McDowell conserves tissue by the use of a small triangular flap (fig. 6), while that recommended by LeMesurier employs a flap of quadrangular shape (fig. 7). The use of either of these excellent procedures can usually be expected to give the nose and lip a satisfactory appearance (fig. 8).

Some idea as to the current dissatisfaction with treatment of the bilateral cleft lip may be gained from the large number of varying procedures that are still in vogue.[2] This applies particularly to the double cleft lip that presents extreme protrusion of the premaxilla. There are those who believe that the



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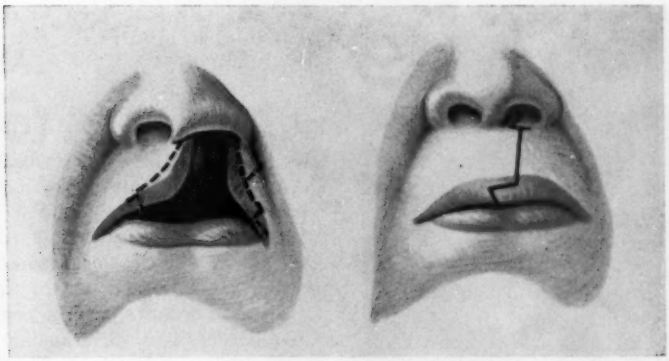

FIGURE 5.

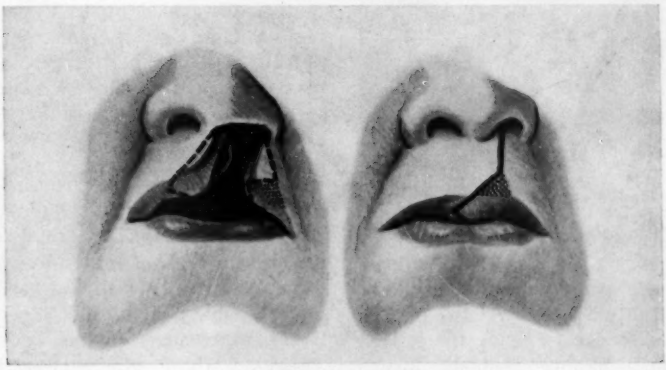

FIGURE 6.

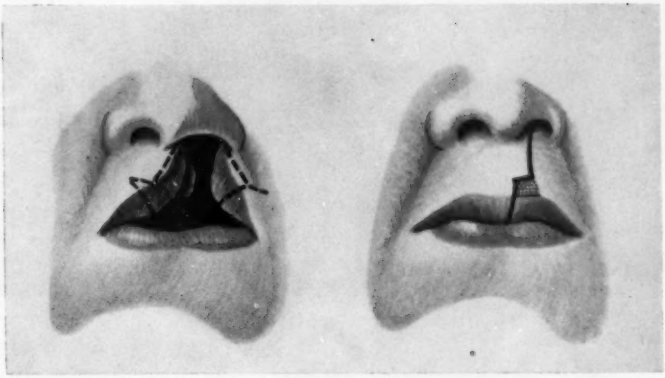

FIGURE 7.

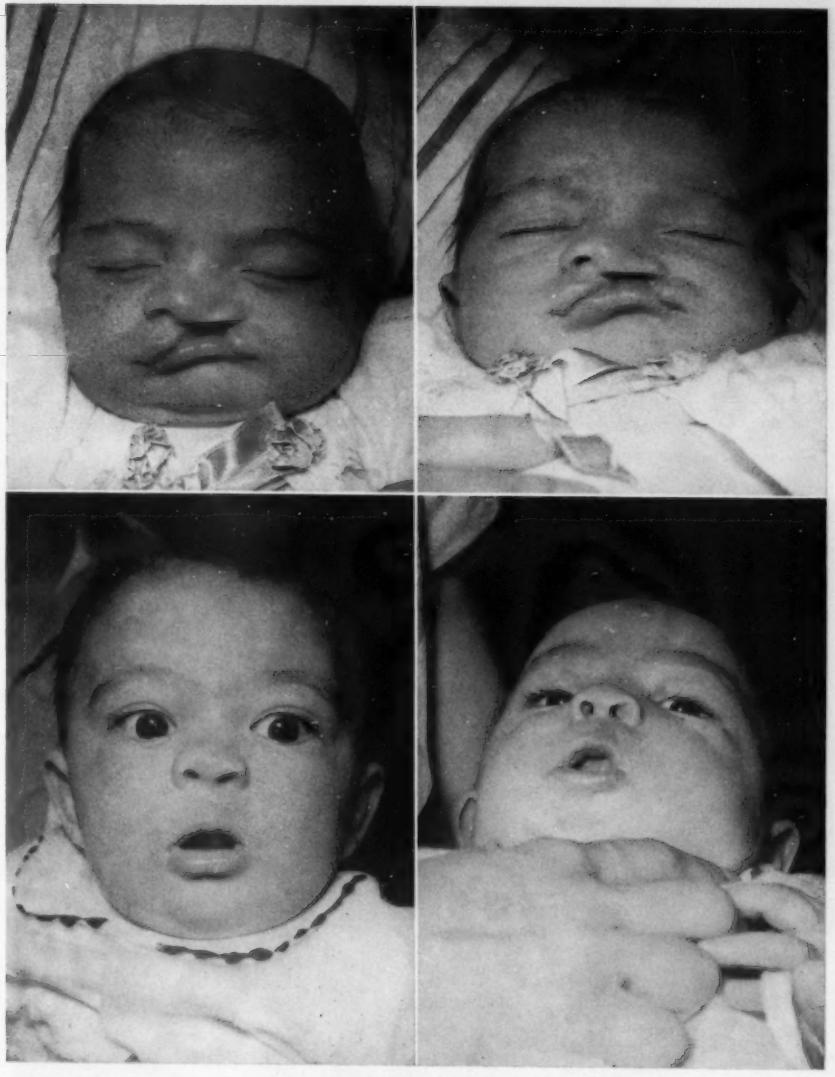

FIGURE 8.

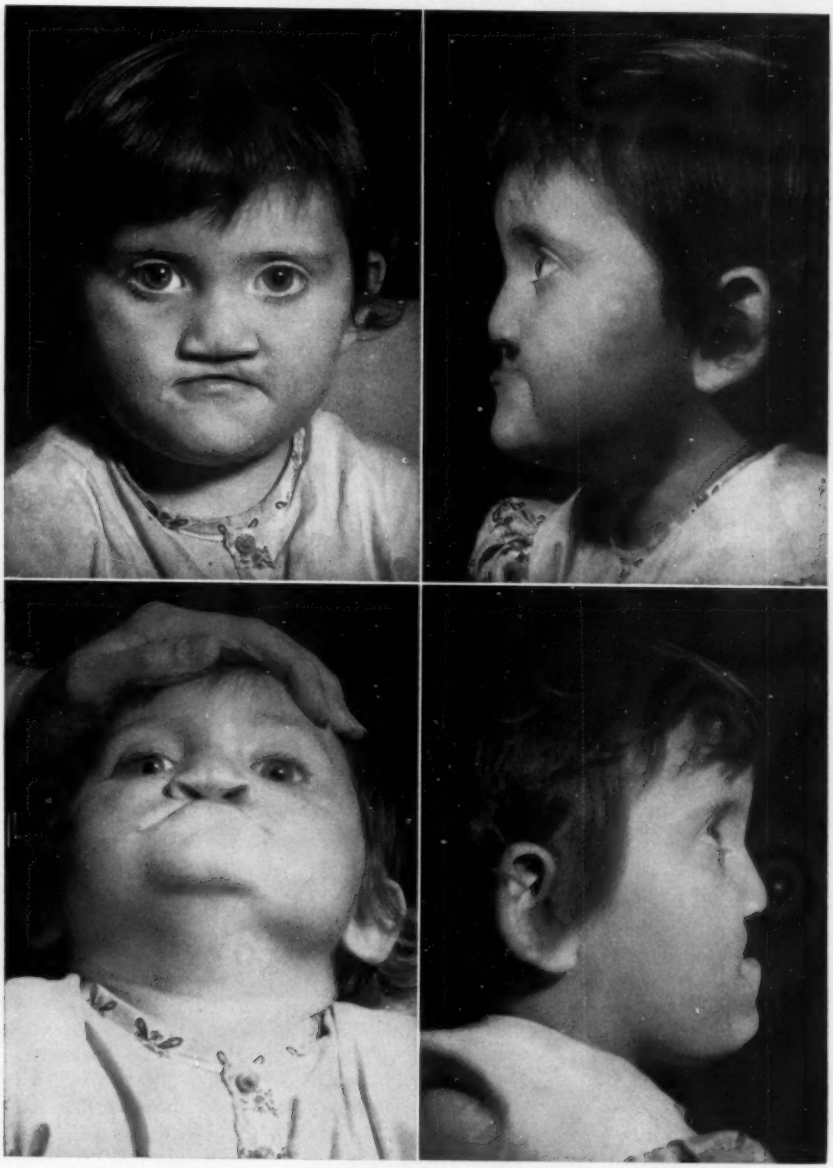

FIGURE 9.

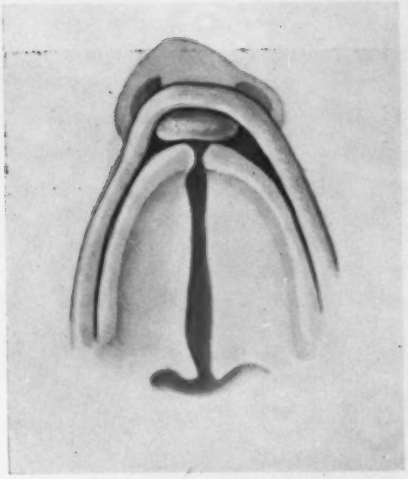

FIGURE 10.

premaxilla should be surgically placed in its normal position in the upper dental arch.[7] In many cases such premaxillary recession gives a desirable result. In others it causes extreme flattening of the nasal tip. Even worse, the middle one third of the face may fail to keep pace with the growth of the mandible. In this unhappy situation, the patient not only has a prognathic appearance (fig. 9) but presents major dental problems. Those who do not favor surgical retroplacement of a protruding premaxilla believe that the lip should be repaired over it so that the projecting member will be pushed gradually backward by lip pressure.[9] This often produces the desired result, but there is always a chance that the maxillary halves of the upper jaw will be pushed together behind the premaxilla (fig. 10). Although an alveolar arch of this type may lend a pleasing appearance to the nose and lip (fig. 11), the patient's dental occlusion is poor and must be treated by orthodontic expansion of the upper arch.

The handling of the premaxilla is not the only undecided problem in the care of the bilateral cleft. There is still a

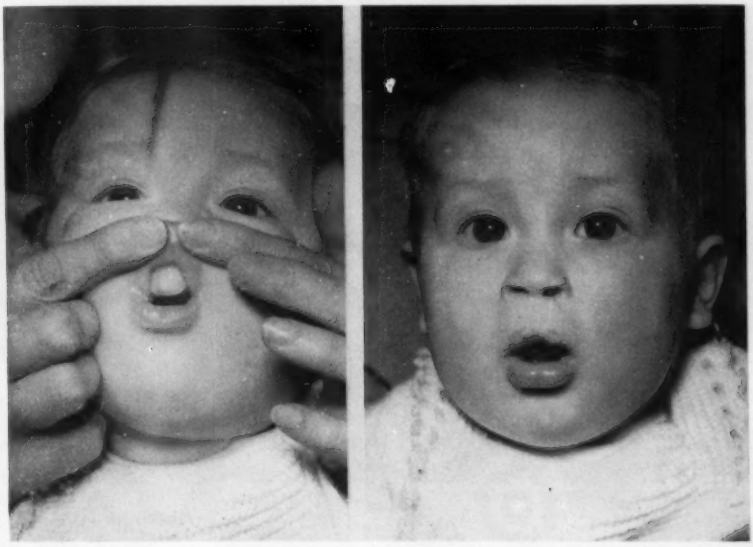

FIGURE 11.

FIGURE 12.

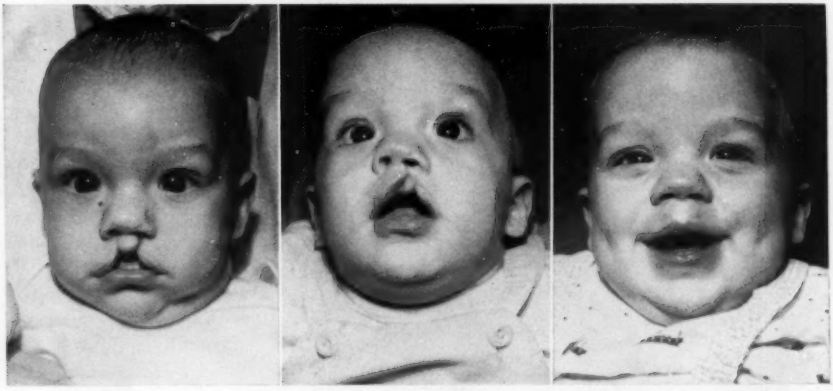

FIGURE 13.

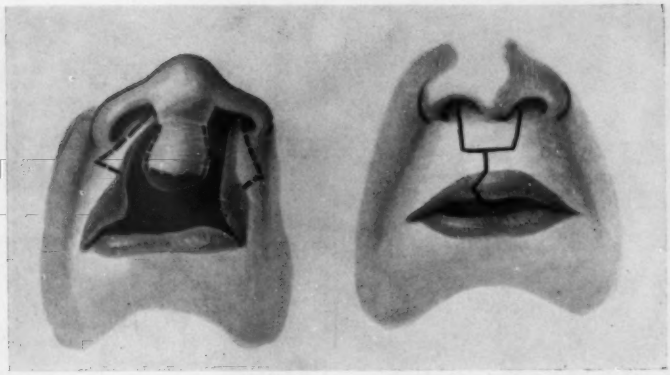

FIGURE 14.

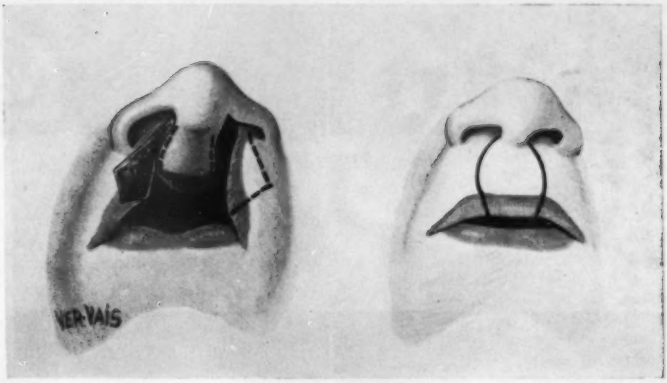

FIGURE 15.

question as to whether the lip should be repaired in one stage (fig. 12) or in multiple stages (fig. 13). The methods that are used for repair fall into two main classes.[2] In one class the prolabium is used to form only the upper part of the middle one third of the lip (fig. 14); in the other class the prolabium is used to form the entire middle one third of the lip (fig. 15). In the former method the lip margin may be tight and retracted (fig. 16); in the latter method, growth of the prolabium may fail to keep pace with the lateral lip segments so that a double notch occurs (fig. 17).

The foregoing discussion may leave the impression that the outcome in all bilateral cleft repairs is totally black. Such is not quite true. A great number of bilateral clefts can be repaired to the satisfaction of all concerned, but the fact remains that bilateral repairs are fraught with more hazards and misgivings than are unilateral ones. Even in the cases with unsatisfactory primary results, much can be gained from orthodontic and prosthodontic treatment and from secondary surgical intervention. A flattened nasal tip can be greatly improved by lengthening the columella[3]

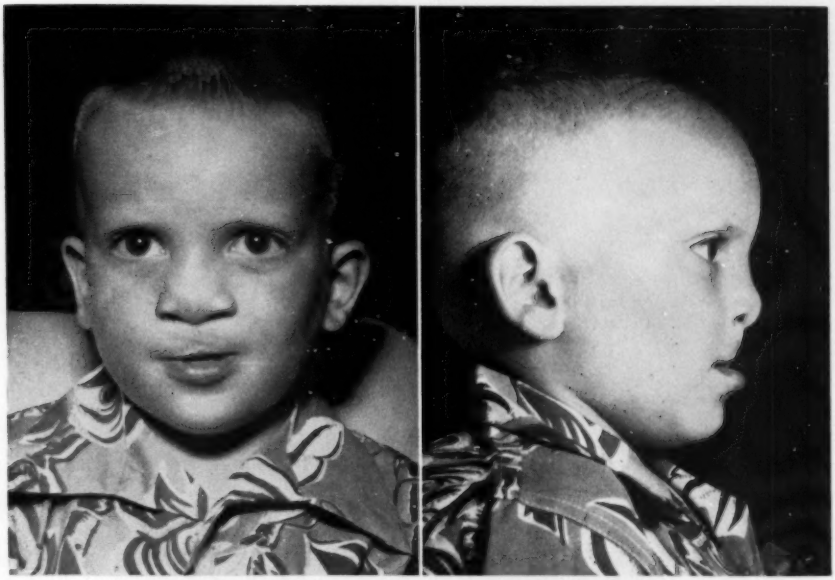

FIGURE 16.

FIGURE 17.

FIGURE 18.

(fig. 18); a deficient upper lip can be improved by a flap from the lower lip[1] (fig. 19), and a deficiency of vermilion substance can be corrected by skin excision and advancement of mucosa[5] (fig. 20).

SUMMARY

We hope that we have not left the impression that all or even most repairs of bilateral cleft lips are unacceptable. However, we must admit that the double cleft presents difficulties that are far more numerous than, and are totally unrelated to, those found in the relatively simpler unilateral cleft.

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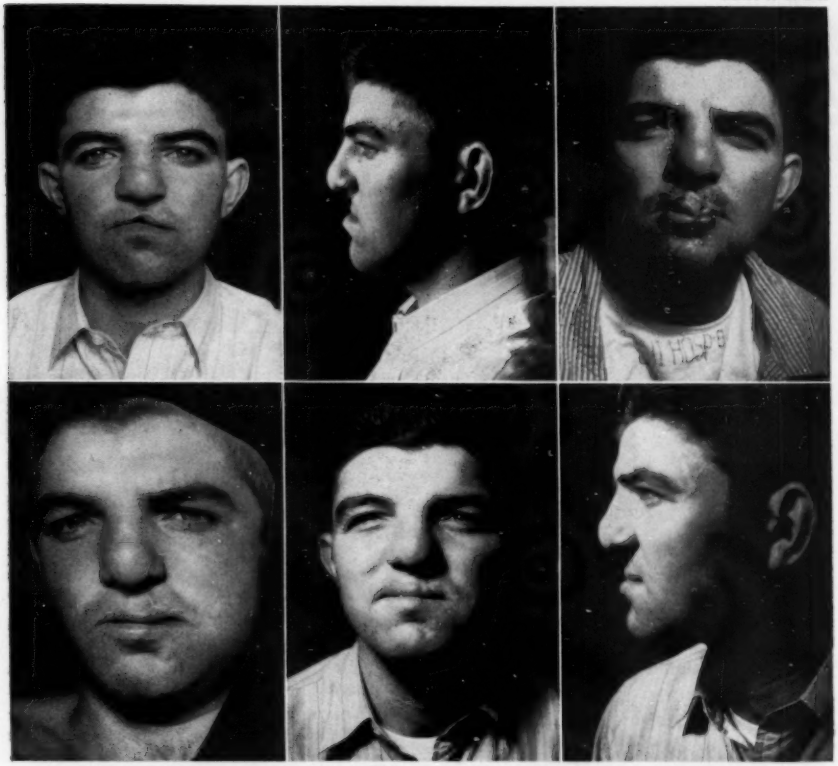

FIGURE 19.

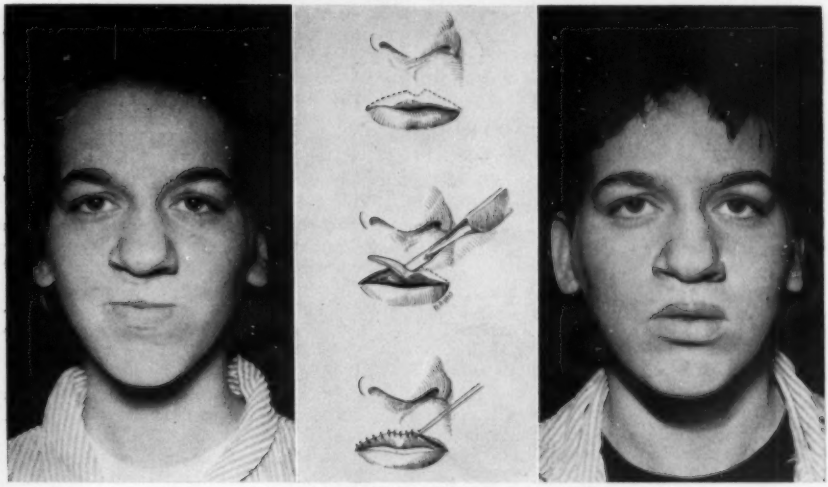

FIGURE 20.

A TECHNIQUE FOR SURGICAL CORRECTION OF LOP EARS

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A CHARACTERISTIC of the lop ear is the faulty development of the antihelix, which appears unfurled. Associated with this deformity is a misshapen concha, often excessively cupped. The combination of these deformities causes abnormal protrusion of the ear.

The antihelix, delimiting the concha posteriorly, resembles an incompletely closed cylinder; it widens superiorly, forming a smooth convexity which blends with the surrounding structures.

Two steps constitute the essential operative procedures for correction of the lop ear: (1) reconstituting an antihelix with its cartilaginous curvature, and (2) correcting the excessive cupping of the concha by excision of a strip of conchal cartilage. Other minor deformities associated with this condition are not discussed in this report.

Republication of this paper has been made possible through the kind permission of Plastic and Reconstructive Surgery. The authors have added points of technique not published in the original paper.

From the Clinic for Reconstructive Plastic Surgery of the Face, Manhattan Eye, Ear and Throat Hospital, New York, New York.

Presented at the *Special Program* of the Otolaryngic Section of the Committee on Plastic and Reconstructive Surgery at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

There have been many contributions to the literature on this subject, such as those of Davis and Kitlowski (1937),[3] Young (1944),[6] McEvitt (1947),[4] Ragnell (1952),[5] and Becker (1953).[1] Our technique embodies many technical points previously described and includes some new features in planning and executing the operation for lop ears.

TECHNIQUE

The appearance of a normal ear may be visualized by folding the protruding auricle back; the purpose of the operation is to obtain such a result surgically.

After the operative field has been prepared and the patient draped, the ear is folded back until a normal appearance of the antihelix curvature is attained; the anterior and posterior limits of the antihelix are then outlined with ink on the outer or lateral surface of the auricle (fig. 1, A). The anterior and posterior limits form a pear-shaped area, the anterior-superior aspect of the antihelix curvature reaching a point immediately above the fossa triangularis and extending downward into the concha medial to the antihelix.

The surgical technique is based upon the following principles:

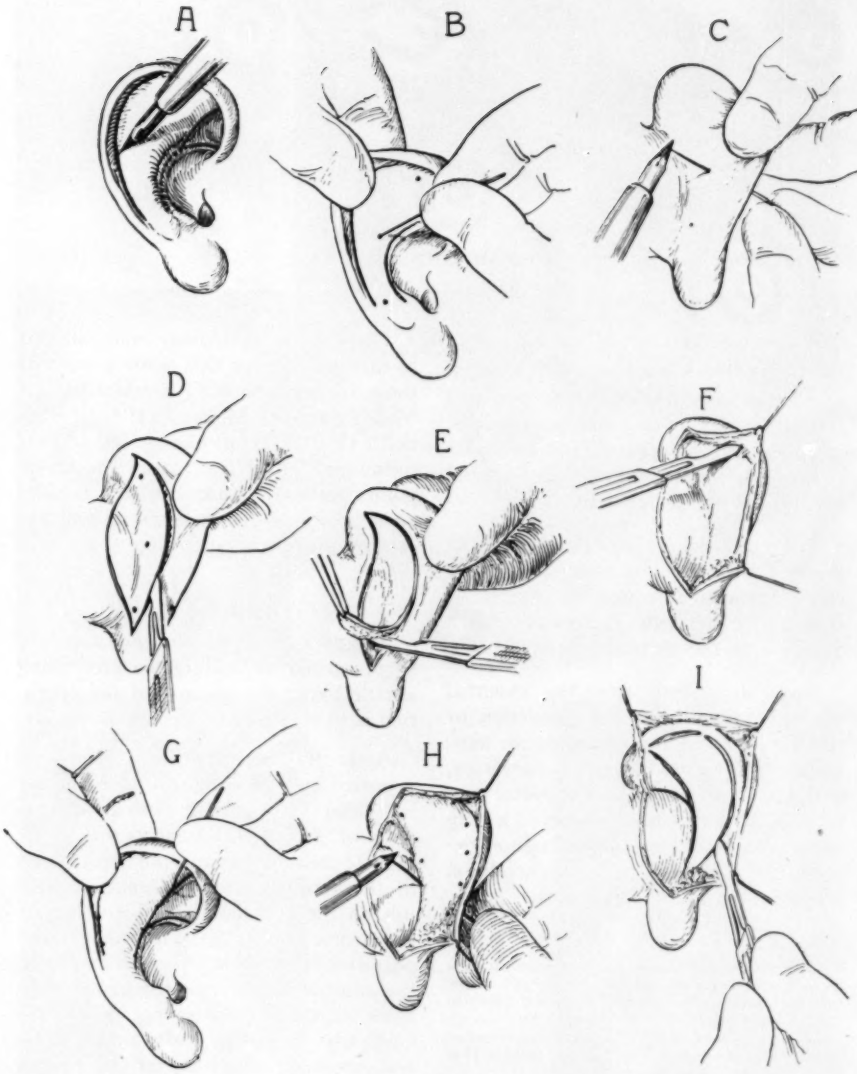

FIGURE 1.

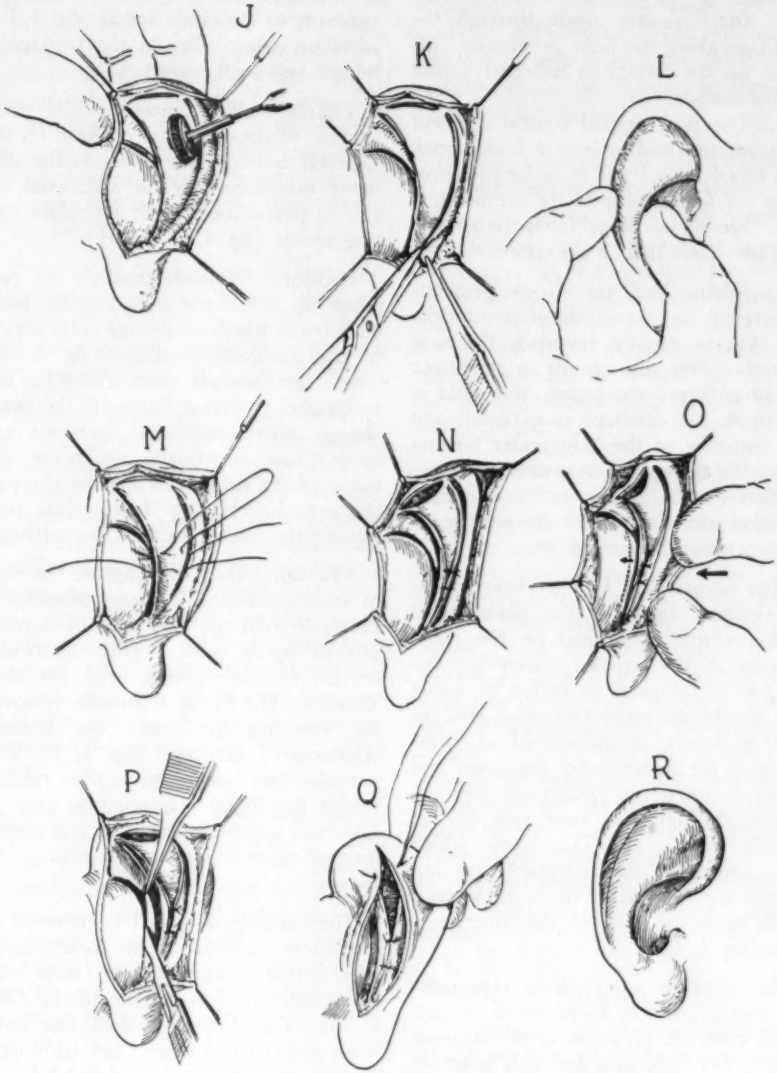

FIGURE 1, Continued.

1. The auricular cartilage is exposed by excising an ellipse of skin from the medial or posterior aspect of the auricle.
2. Incisions are made through the cartilage along the lines previously outlined on the lateral or anterior aspect of the auricle.
3. The pear-shaped central segment thus outlined and incised is folded back and tubed upon itself in order to reproduce the appearance of the antihelix.
4. Excess cartilage from the concha and the cauda helicis is excised.

In folding back the auricle previous to surgery, an excess fold of postauricular skin is usually revealed. Excision of this excess skin results in a number of advantages: the excess skin fold is removed, the cartilage is exposed, and the suturing of the skin under tension following the operation assists in the retention of the auricle in its corrected position and aids in the prevention of postoperative hematoma.

The excess skin fold is removed approximately opposite the pear-shaped area previously outlined on the outer surface of the auricle; a definite procedure is followed in order to locate this area on the inner surface. A straight cutting needle is introduced at three points in the center and at the upper and lower limits of an imaginary line extended through the long axis of the auricle (fig. 1, B). The needle which transpierces the ear is tipped with ink before its removal in order to leave a mark upon the skin of the inner surface (fig. 1, C).

An elliptical area, which represents the area of skin to be removed, is outlined with ink previous to the incision (fig. 1, D). The skin and subcutaneous tissue within the outlined area are then removed, exposing the perichondrium (fig. 1, E). The remaining skin along the edges of the ellipse is sharply dissected away from the perichondrium down to the lower limits of the concha in order to attain adequate exposure of the auricular cartilage, which includes exposure of the cauda helicis (fig. 1, F). Bleeding is controlled by electrocoagulation of sectioned vessels.

The pear-shaped area on the outer surface of the auricle is outlined on the exposed cartilage, the limits of the area being established by an additional series of perforations with a straight cutting needle (fig. 1, G and H).

Incisions are made through the cartilage up to but not including the perichondrium which covers the outer aspect of the auricular cartilage (fig. 1, I). These incisions are made along the anterior and posterior limits of the pear-shaped area; additional incisions are made: one superiorly, following the curve of the helix, and another through the crus helicis (fig. 1, I), thus permitting the folding back of the cartilage.

The fairly thick cartilage in the ears of some individuals requires thinning to facilitate folding; this may be accomplished by a wire brush, electrically driven, similar to that used for skin abrasion. The brush technique removes the perichondrium and the desired thickness of cartilage (fig. 1, J). The partially freed cartilage is then readily folded by digital manipulation (fig. 1, L). It is sometimes necessary to resect protruding portions of the cartilage of the cauda helicis (fig. 1, K).

The cartilage is tubed upon itself in the lower portion of the pear-shaped area, chromic catgut sutures (sizes 5-0) being used to maintain the tubing (fig. 1, M). The auricle is then examined from the outer surface, and additional sutures are employed until the tube of cartilage presents the appearance of a well-formed antihelix (fig. 1, N).

At this stage, the upper portion of the auricle is in its corrected position; the

concha, however, because of the excessive cupping characteristic of the lop ear, still remains prominent. The auricle is pressed against the side of the head until the protrusion is corrected. The amount of excess conchal cartilage is visualized before excision by observing the overlap of the tubed antihelix over the concha (fig. 1, O and P). A series of interrupted skin sutures approximates the skin edges on the inner aspect of the ear (fig. 1, Q).

The buried chromic sutures maintain the corrected position of the auricular cartilage and usually obviate the use of externally placed through-and-through mattress sutures.

Pressure dressings are applied after the surgical correction of both ears is completed. Pledgets of cotton soaked in mineral oil and squeezed dry are carefully packed within the convolutions of the corrected ear. Fluffed-out gauze compresses and cotton pads are applied. These dressings are maintained by a head cap of "surgitube" which covers both ears as well as the head. Elastic-type bandages are employed to immobilize the dressings and ensure mild compression. The pressure dressings remain undisturbed for a period of five to seven days.

This technique has been used in a series of 68 cases over a period of three years. It avoids sharp ridges resulting from folding back the cartilage and obliteration of the postauricular fold, two inconveniences observed in techniques employed previously. The corrected ear has the rounded antihelix which characterizes the normal ear (fig. 1, R).

ADDITIONAL POINTS IN TECHNIQUE

It has been noted that in the large-sized lop ear, characterized by the absence of the antihelix, the cartilage is generally thin and often does not require thinning by the wire-brush technique. In the small-cupped ear, however, characterized by underdevelopment of the antihelix and cupping of the concha, the cartilage is generally quite thick. The cartilage should be thinned to obtain a new rounded antihelix.

In the small-cupped ear deformity some difficulty may be encountered in holding the ear with the fingers during the operative procedures. Silk sutures passed through the skin near the border of the helix are of assistance in controlling the position of the ear during the operation; one is placed above, and another toward, the middle portion of the ear, the sutures being held by hemostatic clamps.

It has been noted in many markedly cupped ear deformities, after the upper portion of the ear has been corrected, that the lower portion of the concha, the antitragus and the earlobe itself protrude even after resection of the cauda helicis. Additional cartilage should be removed from the lowest portion of the concha in these cases. The antitragus should be cut through its posteromedial surface. Examination of the antitragus after it is cut through will disclose some overlap of cartilage; this overlapping segment should be resected. After remodeling the cartilaginous framework, if the lobe still protrudes, the excess skin is removed from the posterior surface in order to set the lobe closer against the head.

SUMMARY

1. A technique is described for surgical correction of the two characteristic deformities of the lop ear, namely, faulty development of the antihelix and excessive cupping of the concha.

2. The technique restores adequate shape to the ear, with its characteristical-

ly rounded antihelix and normal degree of protrusion of the ear from the side of the head.

3. The postauricular fold is not obliterated.

4. Additional points of technique are given.

Note: The authors wish to express their appreciation to Dr. Harry H. Shapiro for his editorial assistance.

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DISCUSSION

DR. WILSON: I should like to congratulate Dr. Converse, but I feel that I cannot as I am co-author of this paper.

I should like to stress the fact that each case must be treated individually. No two cases offer the same problem. I believe the problem of creating an antihelix and reducing the conchal hypertrophy has been solved, but in each case, as in most rhinoplasties, specific deformities which are peculiar to that case, must be corrected. For example: If there is prominence in the region of the antitragus, cartilage must be removed over it; in other cases the cauda helicis protrudes, and it must be removed. As a further example: In some cases only one suture is necessary to tube the central segment; in other cases it may be necessary to use three or four sutures.

I have never found it necessary to use external mattress sutures. However, I do occasionally use internal mattress sutures over the central segment if the protrusion or cupping is excessive.

OSCAR J. BECKER, M.D., Chicago: As usual, Dr. Converse has given us a fine illustration of surgical technique. There are many points of similarity between his method and the technique I have described. The incisions are much the same and follow the natural contours of the ear.

Dr. Converse's method of tubing the antihelix is an excellent idea, and by its use one should form a really smooth antihelix. However, in most cases I find it necessary to remove a section of antihelix toward its conchal side; this lowers or flattens the antihelix; otherwise it may appear too prominent when the ear is set back. By partially undermining the remaining cartilage in the antihelix, after removal of the segment, and by the placement of an external mattress suture, the antihelix is partially rolled. By this technique, my result simulates what Dr. Converse accomplishes when he tubes the cartilage.

I understood Dr. Wilson to say that external mattress sutures should not be used. I have used them, when indicated, for a number of years and find that if you tie them with different degrees of tension, you can form the antihelix fold and regulate its width and height with some control. This is done at the completion of the operation, and some cases will be found that require no external mattress sutures, but if I feel they are indicated, the factor of control in forming the fold appears to be advantageous.

The method of thinning the cartilage with the steel wire brush is certainly ingenious. I haven't found many cases in which thinning of the cartilage has been necessary, because after the spring of the cartilage is broken by the incision and by removal of the segment of cartilage from the antihelix, the ear falls back into position. However, in the method here presented, in which no cartilage is removed from the antihelix, I can see that it is necessary to thin it before the new antihelix fold can be properly formed.

MEDIAN FOREHEAD FLAPS IN THE REPAIR OF DEFECTS OF THE NOSE AND SURROUNDING AREAS

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and
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IN 1946, one of us[2] published a paper on the use of the median forehead flap in the repair of nasal defects. At this time we would like to re-emphasize the practical application of this flap as a simple and direct means for the repair of defects of the nose and surrounding areas. The procedure has a number of advantages: (1) it eliminates delaying of flaps or the transfer of soft tissues from distant parts of the body; (2) being near the defect, the color and skin texture of the flap match closely that of the nose and adjacent regions; (3) fewer operative steps are required; (4) the forehead wound, resulting from transfer of the flap, may be closed by direct approximation of the skin edges. The use of this type of flap has proved successful in the repair of small, and some fairly extensive, defects of the nose and its neighboring structures. A high forehead will naturally afford a longer and larger flap for repair of very large defects, if indicated. The main objection to the use of forehead skin has been the resulting conspicuous scar on the forehead. This serious drawback has forced the plastic surgeon to resort to other means of repair. Skin flaps from the arm (Italian method) have been used to advantage, but though this method supplies an abundant amount of skin, the color match is poor and the arm must be placed in an uncomfortable position at the side of the head for a period of two or three weeks before the flap can be safely cut through at its pedicle. The same objections apply to the use of tube flaps from distant parts of the body. The Gordon New "sickle flap"[4] and the Converse "scalping flap"[1] are intended to shift the donor area from the frontal to the temporal region, where the defect is less conspicuous. These flaps are useful for total rhinoplastic restorations in which the median flap may not supply a sufficient amount of skin. Local flaps (French method) for the repair of nasal defects are limited to relatively minor defects. Each of these procedures has its use and should be considered when planning repair of a defect, but the primary object of this paper is to re-emphasize the many practical applications of flaps from the midsection of the forehead.

The blood supply of the central section of the forehead is abundant, coming mainly from the supraorbital and frontal arteries, and to a lesser degree from the terminal branches of the angular arteries. The supraorbital and frontal arteries course vertically upward, anastamosing with branches of the superficial temporal arteries and with each other. This explains why large and long flaps may be shifted over the nose and side of the face without delaying them.

Presented at the *Special Program* of the Otolaryngic Section of the Committee on Plastic and Reconstructive Surgery at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

PREPARATION OF THE FLAP

Two parallel incisions are made over the central portion of the forehead from 0.5 inch to 1.5 inches apart, depending upon the amount of skin that is required to repair the defect. These incisions extend from the hairline to just above the frontal eminence on both sides. The flap is raised from its bed, and when it reaches the region above the eyebrows, the incisions are made more superficially and extend as far as the root of the nose if necessary, but the subcutaneous dissection is carried downward by blunt dissection to avoid injury to the nourishing arteries (fig. 1).

In large defects involving the inner lining, such as those involving the nasal dorsum, the sides of the nose, and the cheek, with opening into the maxillary sinus, we have found it convenient to extend the flap down and to use the skin of the forehead to form the inner lining. The skin borders of the flap are carefully sutured to the mucosal lining. The exposed surface of the flap is then covered with a full-thickness postauricular skin graft. This procedure obviates twisting of the pedicle and allows the flap to extend farther down to cover the defects of the face. The ability of a full-thickness graft to survive under these conditions is surprisingly good, and the final color and texture match is excellent.

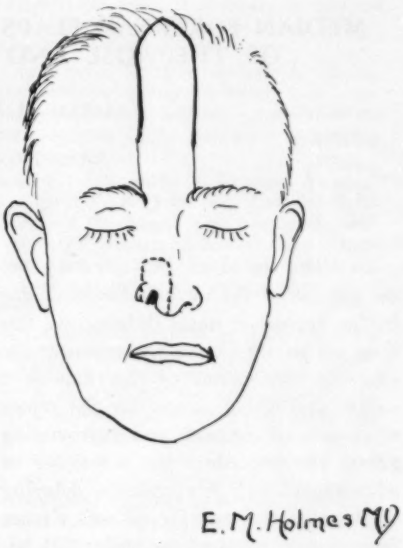


FIG. 1—Diagram illustrating incisions for median forehead flap. The darker lines indicate area where incisions are carried through to the periosteum. The lighter lines indicate incisions only through skin, the deeper subcutaneous tissues being separated by blunt dissection to avoid injury to the nourishing vessels.

CLOSURE OF THE FOREHEAD WOUND

Small gaps, 0.5 inch wide, are easily closed after moderate undermining of the skin. If the gap is wider, the skin is undermined more freely on each side of the wound, and further relaxation is obtained by making, on each side, two or three vertical parallel incisions through the fascia without penetrating the fat. Usually there is no difficulty in closing the lower part of the wound as the forehead skin is quite loose around and above the eyebrows. As one approaches the hairline, the skin is less elastic and closure becomes more difficult. However, the wound may successfully be closed by pulling the skin edges together under considerable tension with temporary strong silk sutures. Later, near the end of the operation, these sutures are replaced with fine dermalon sutures, carefully applied. When the borders of the wound have been forcibly closed, the resulting scar line may be quite conspicuous. It is always possible to repair such scars by excision of the scar line and approximation of the borders at a later period, when the forehead skin has become more elastic. If more extensive gaps of the central portion of the forehead exist and cannot be closed by the above methods, other procedures are at our disposal. Transverse incisions above the eyebrows ex-

tending laterally from the lower end of the forehead wound may be made, the tissues undermined and advanced medially (fig. 2). Another procedure is that used by Schimmelbusch in 1895, who covered extensive median forehead wounds by advancing broad rotation flaps from each side (fig. 3). We have seldom had to use these more radical procedures for closure of the wound resulting from elevation of a median forehead flap, the simpler procedures having sufficed.

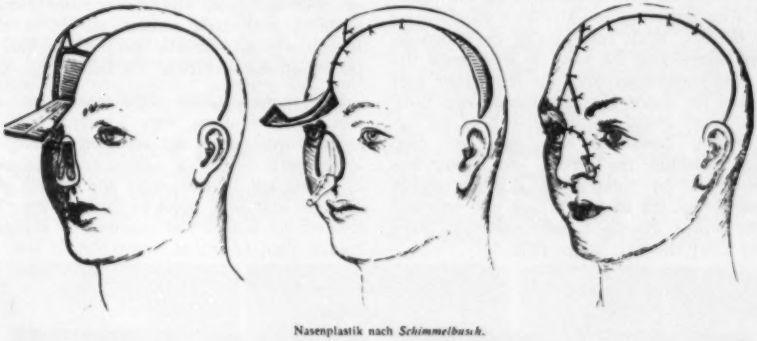
The following cases are examples of types of defects favorable for repair by the median forehead flap.

CASE REPORTS

Case 1

A 74-year-old woman had a lesion at the tip of the nose which was suspected of malignancy. It was resected with a wide margin, leaving a wound approximately 1.00 inch by 0.75 of an inch. The underlying cartilage was also removed "en bloc," but the lining of the nose was not sacrificed. Repair was accomplished by rotation of a median forehead flap (fig. 4, A and B). The proximal two thirds of the flap was returned to the forehead four weeks after the first operation (fig. 4, C)

FIG. 2—Extensive vertical wounds of the mid section of the forehead resulting from transfer of wide median forehead flaps may be closed by making transverse incisions above the eyebrows, undermining widely, incising the galea vertically in several areas, and stretching the two sides medially. (Kazanjian[2])



Nasenplastik nach *Schimmelbusch.*

FIG. 3—In 1895, Schimmelbusch described a case using a vertical median forehead flap. Illustration shows immediate closure of the defect utilizing a rotation flap from each side of the forehead. (Fig. 311, vol. IV[3])

Case 2

This 46-year-old male first noticed a lesion on the left side of the nose in 1937. It was treated elsewhere by silver nitrate, a "spray," and roentgentherapy. Following the latter, the

FIG. 4—Photographs A and B taken in operating room. (A) Note the length of the flap, extending to the root of the nose. Its distal end bled profusely, indicating its adequate blood supply. (B) Flap rotated down and sutured to wound edges. The forehead wound was easily closed by moderate undermining and approximation of skin edges. (C) Final result.

lesion apparently healed and disappeared until 1948, when it recurred and became larger. Our examination in 1948 revealed a raised, ulcerated area involving the left side of the nose near the eye. Wide resection of the lesion involved sacrificing the skin, subcutaneous tissues and periosteum over the left upper half of nose, the inner canthus, medial one third of the lower eyelid and one fourth of the upper eyelid. Resection was extended deep enough to include the lacrimal sac. Repair was accomplished by rotation of a large median forehead flap, the base of which was returned to the lower forehead approximately three weeks after the first stage (fig. 5).

Case 3.

This patient had scattered venous hemangiomas of the face, which were raised, sharply outlined, and dark reddish purple in color. Recently papilloma-like projections had appeared on the surface of the lesion (fig. 6, A).

The lesions on the right side of the nose and inner canthus were excised and both wounds made into one common wound. The lower portion of this wound could be closed by direct approximation of the wound edges, near the alar fold. Most of the remaining portion of the wound was repaired by shifting a median flap, 3.5 inches by 1.0 inch in size. The

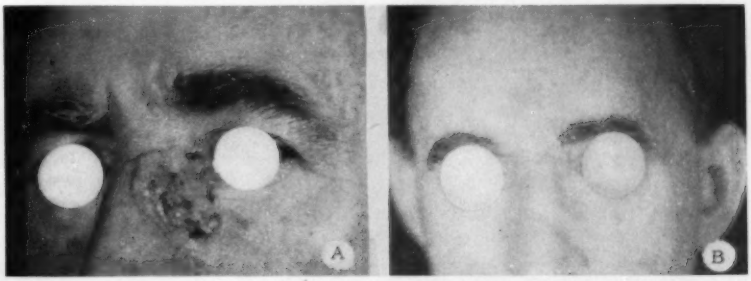


FIG. 5—(A) Extent of basal cell carcinoma, involving side of nose, inner canthus and medial ends of upper and lower eyelids. (B) Postoperative view, showing repair with median forehead flap. The forehead scar can be further improved, but the patient did not find it objectionable.

FIG. 6—(A) Venous type of hemangioma (strawberry mark). (B) Median forehead flap rotated to repair most of the wound resulting from excision of the lesion. The upper eyelid and upper lip were repaired with full-thickness grafts. (C) Final condition, after base of flap was returned to the region between the eyebrows, and the transplanted flap thinned by excision of underlying fat. (Kazanjian and Roopenian: Plast. & Reconstruct. Surg., vol. 13 (May) 1954.)

wounds on the eyelid, however, were covered by a full-thickness postaural skin graft, as were also the wounds resulting from excision of the lesions on the lip. The forehead wound resulting from transplantation of the median forehead flap was easily closed by wide undermining, cross hatching of the galea, and suture of the skin edges under moderate tension (fig. 6, B).

At a second operation, the pedicle of the forehead flap was returned to the area between the eyebrows, and the transplanted flap was thinned to the level of the surrounding skin (fig. 6, C).

Case 4.

This patient suffered multiple injuries of the face including fractures of the maxilla, malar and nasal bones. Lacerations of the soft tissues involved the root of the nose and the right side of the face. Reduction of the fractures was accomplished by surgery, aided by use of various appliances. There remained, however, a marked depression over the root of the nose which was covered with thin scar and granulating tissue (fig. 7, A). It was obvious that a bone graft would be needed for contour restoration of the nasal bridge, and that healthy soft tissues would be necessary in

FIG. 7—(A) Marked depression of nasal bridge with indolent healing of laceration. (B) Median forehead flap has replaced the unhealthy wound. (C) Iliac bone graft has been inserted under the transplanted flap restoring the nasal bridge. (From Kazanjian and Converse[3])

FIG. 8—(A) Basal cell carcinoma between the inner canthus and eyebrow. (B) Lesion excised widely and wound repaired by a relatively short median forehead flap in one stage. (C) Appearance several months after operation.

this region for successful bone grafting. Accordingly, the scars and granulating tissue were excised and replaced with the healthy skin of a median forehead flap (fig. 7, B). Later, an iliac bone graft was implanted under the transplanted flap to build up the nasal dorsum (fig. 7, C).

Case 5

This 52-year-old female had a slowly enlarging basal cell carcinoma between the inner canthus of the right eye and the eyebrow. The lesion was sharply defined and about one centimeter square, not attached to underlying periosteum (fig. 8, A). Excision with a wide margin of normal tissue involved sacrificing the skin of the medial one fourth of the upper eyelid, and skin and subcutaneous tissues, including periosteum, of the right upper side of the nose, extending in depth to the lacrimal

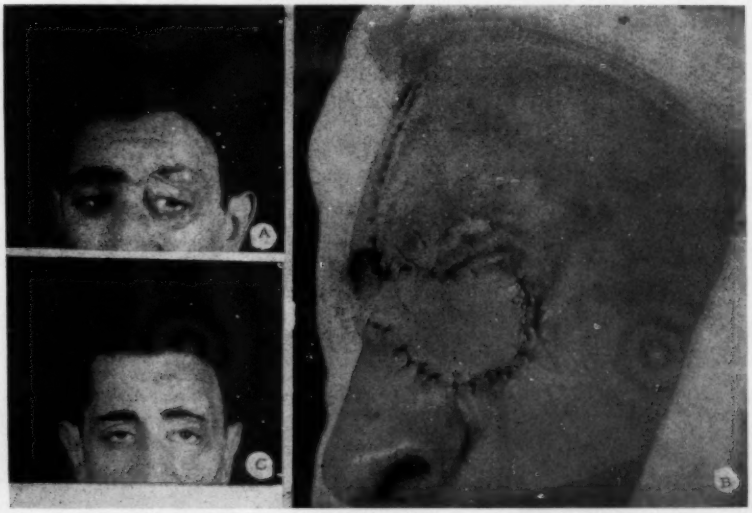


FIG. 9—(A) Burn scars about the eye, with contracture causing severe ectropion of lower eyelid and chronic conjunctival irritation. The medial half of the upper lid was drawn up by scar tissue. (B) Excision of the scar tissue of the lower eyelid, allowing lid to return to its normal position, left a large raw area which was repaired by a median forehead flap. In addition, the contracture of the upper eyelid was corrected with a full-thickness skin graft. (C) Final appearance after several subsequent operations: thinning down the forehead flap, correcting the deformity of the eyebrow, and revising scars.

ridge. Repair was accomplished at the same operation by rotation of a median forehead flap (fig. 8, B and C).

Case 6

This 20-year-old male had contracture deformities about the left eye resulting from burns in infancy. He had undergone several previous operations, but his most disabling deformity, a severe ectropion of the left lower eyelid, still persisted (fig. 9, A).

Examination revealed scarring about the left upper eyebrow and upper and lower eyelids, with downward traction on the lower eyelid exposing the bulbar and tarsal conjunctiva, and with chronic inflammation of the conjunctiva.

Efforts were first directed at correcting the ectropion. This was accomplished by excising the scar tissue about the lower eyelid, allowing the lid to come up against the globe in its natural position, and repairing the resulting defect by rotation of a median forehead flap (fig. 9, B). This procedure corrected the gross deformity of the lower eyelid, but several subsequent operations, both upon the upper and lower eyelids and the eyebrow were necessary to give the desired functional and cosmetic result (fig. 9, C).

Case 7

A 37-year-old female with the history of roentgentherapy for facial acne twenty years previously. Examination revealed the entire skin of the nose to be dry, sclerotic, scaly and telangiectatic, typical or old roentgen-ray reaction. The skin was broken down in several small areas, suggesting a precancerous condition. Operation at this time consisted of removal of the entire skin covering of the nose, and repair with full-thickness skin grafts from both postauricular regions.

Two years later the patient complained of dryness inside the left naris. The skin graft on the exposed surface of the nose was healthy in color, but the border of the left nostril was retracted (fig. 10, A). When crusting inside the nostril was removed, there was a definite ulceration, typical of basal cell carcinoma, involving the right lateral wall. The patient was hospitalized, and the entire left lower side of the nose was excised with the diathermy knife. No attempt was made to repair the resultant defect at this time (fig. 10, B).

Approximately three months later, since there was no evidence of recurrence, the defect of the nose was repaired by turning down a median forehead flap, using the skin of the forehead to form the inner lining of the nose, and by providing a postauricular full-thickness skin graft for the outer covering (fig. 10, C). Later, the unused portion of the flap was returned to the forehead (fig. 10, D).

Comment: This patient evidently had an excessive dosage of roentgen rays for treatment of an acne condition. The skin of the entire face is somewhat sclerotic, but so far there have been no degenerative changes except for those on the nose.

Case 8

A 50-year-old female had recurring carcinoma of the right side of the nose for fifteen years. Radium and surgical excision had failed to effect a cure.

Examination in 1955 revealed an ulcerated lesion resembling basal cell carcinoma on the right side of the nose with loss of a large portion of the lower right side. It was decided to try to eradicate the lesion before initiating reconstructive efforts. The involved area was resected with the diathermy knife, which meant sacrificing the entire lower right half of the nose (fig. 11, A).

With no evidence of recurrence and a well-healed wound after three months, the first stage in reconstruction was undertaken. This consisted of implanting a section of conchal cartilage under the skin of the upper end of the anticipated median forehead flap (fig. 11, A).

Approximately three weeks later, the median forehead flap, 1.25 inches wide by 3.5 inches long, was raised on the forehead and turned down to the right side of the nose, and its distal half was sutured to the freshened edges of the nasal defect (fig. 11, B). The skin surface of the flap was utilized as intranasal lining, while its external raw surface was covered with a full-thickness postauricular skin graft (fig. 11, C).

Six weeks later the unused proximal half of the flap was severed transversely at the upper edge of the original defect, denuded of its skin graft, and returned to the region between the eyebrows, successfully transplanting thus the distal half of the forehead flap to the nose (fig. 11, D and E).

Case 9

This 54-year-old male had had a basal cell carcinoma of the right side of the nose for approximately six years. The lesion had failed to respond to previous roentgentherapy. Examination revealed a lesion involving the right

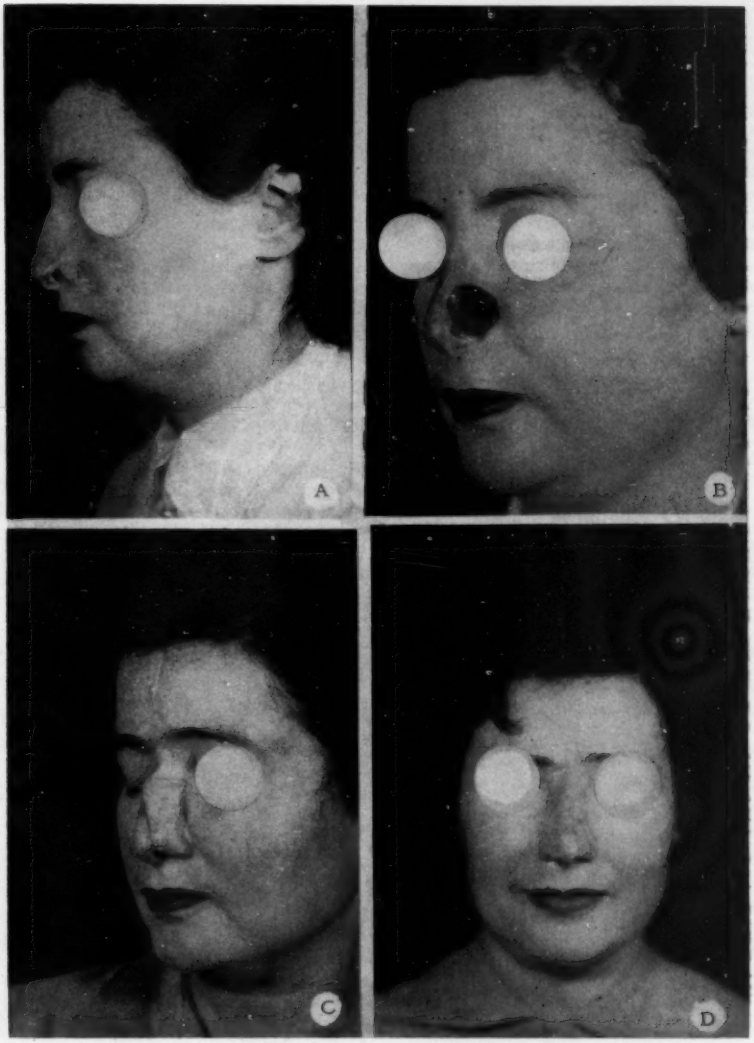


FIG. 10—(A) Retraction of left naris. An ulcer typical of basal cell carcinoma was present inside the nostril. (B) The entire left lower half of the nose was sacrificed. Repair was not begun for three months. (C) The median forehead flap was turned down, with its skin surface forming the nasal lining. A full-thickness postauricular graft was used to cover the exposed raw surface of the flap. (D) Final appearance after unused portion of flap was returned to the forehead. The color and texture of the full-thickness graft match those of the skin of the nose very satisfactorily.

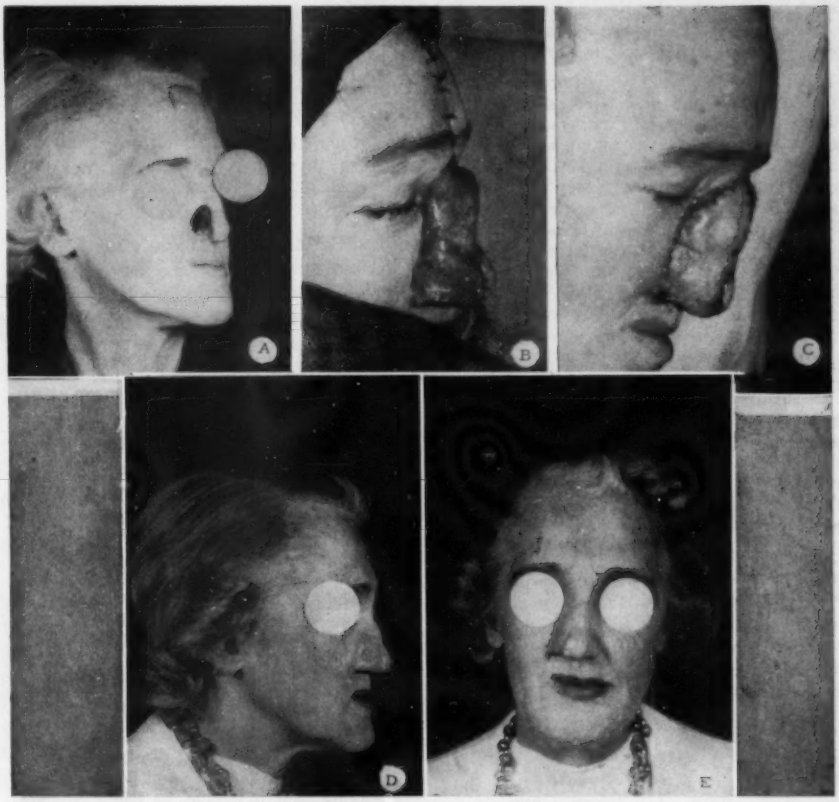


FIG. 11—(A) Extent of nasal defect. At the upper portion of the anticipated forehead flap, may be seen the outline of the incision used for implanting conchal cartilage. The cartilage is buried between the skin and fat layers. (B) The flap has been turned down, with the skin surface forming the lining. (C) The exposed raw surface of the flap has been covered with a full-thickness postauricular skin graft. (D and E) Final result, after the proximal half of the flap was returned to the forehead.

FIG. 12—(A) Extent of lesion involving right lower side of nose. To obtain a safe surgical margin, the entire right lower half of the nose had to be sacrificed. In anticipation of this, a cartilage transplant was previously imbedded in the upper end of the planned median forehead flap. (B) Flap turned down, with the skin surface forming the lining of the nose and the exposed raw surface covered with a postauricular skin graft. (C) Final result. The unused portion of the flap was denuded of its skin graft and returned to the forehead.

alar region with sclerotic and avascular skin surrounding it. There was retraction of the involved region (fig. 12, A).

Operative resection involved the entire right lower half of the nose. Reconstruction was effected in three stages. First, conchal ear cartilage was transplanted to the upper end of the anticipated median forehead flap for better cartilaginous support of the reconstructed area. Five weeks later the entire carcinomatous area involving the right wing of the nose was widely excised, beginning at the base of the alar fold to the edge of the right nasal bone and extending the incision through the midline of the dorsum to the tip. A median forehead flap, including the previously transplanted cartilage, measuring 1 inch transversely and approximately 3.5 inches in length, was turned down from the forehead. The borders were sutured to the edges of the nasal defect, with the skin surface forming the inner lining of the nose. The lower half of the exposed surface was covered with a postauricular full-thickness graft, and the upper half with a split graft (fig. 12, B).

Approximately six weeks later the unused proximal half of the flap was returned to the forehead (fig. 12, C).

Four years later the patient developed another lesion on the nasal columella, which was excised. The defect was repaired by a flap from the floor of the right nostril.

SUMMARY

The practical application of the median forehead flap as a direct and simple method for the repair of defects of the nose and adjacent regions is emphasized. The surgical technique for raising the flap and for closure of the resulting wound are discussed in detail. Several cases are presented illustrating the use of the flap for reconstruction of surface defects as well as of full-thickness defects. In the latter, a method is presented wherein the skin surface of the flap is used as the lining membrane and the exposed raw surface is covered with a full-thickness skin graft, a technique which has yielded very satisfactory results.

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MANAGEMENT OF ENDOTHELIAL AND EPITHELIAL CORNEAL DYSTROPHY

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IN principle, primary endothelial dystrophy of the cornea, or Fuchs's dystrophy, should be considered a senile degeneration, possibly governed by heredity. Cornea guttata, which usually precedes and is assumed to be the initial phase of the disease, has been found by Goar[6] to be present to some degree in 6 per cent of all patients over 30 years of age. As the average age of the population increases, lesions of this nature are likely to become more prevalent. A discussion of the possibilities for therapy of endothelial dystrophy appears, therefore, to be timely.

This presentation will be confined exclusively to the therapeutic aspect of endothelial and epithelial dystrophy. For a detailed study concerning the pathogenesis and the clinical aspects of the various types of endothelial dystrophy, reference is made to our previous publication.[10]

TYPES OF ENDOTHELIAL CORNEAL DYSTROPHY

A. *Primary*
   1. Senile (hereditary?)
      a. With cornea guttata
      b. Without cornea guttata
      c. Allergy (angiospastic edema, hay fever)

B. *Secondary*
   1. After cataract extraction
   2. Diseased corneal grafts
   3. After severe iridocyclitis (sarcoid)
   4. After severe and long-standing anterior chamber hemorrhage

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The picture of a fully developed case of endothelial and epithelial dystrophy with irregular epithelium and clouding of the stroma is shown in figure 1. Figure 2 shows the histologic appearance of the condition. In this unique flat preparation, the characteristic degeneration of the endothelial cells and the formation of warts on Descemet's membrane are easily seen.

Since the condition is of a degenerative nature, a definite cure can hardly be expected. Nevertheless, by influencing contributing factors and treating the distressing symptoms produced by the primary disease, function may be restored or improved and symptoms alleviated, at least for some time. Within this limitation, a study of the therapeutic possibilities may prove worth while.

MEDICAL TREATMENT

A. *Diet*
   1. Low cholesterol, high vitamin A (questionable)

B. *Reducing Permeability of Endothelium*
   1. Systemic: vitamin P-like substances and ascorbic acid (rutorbin, quertin and ascorbic acid, hesperidin and ascorbic acid)
   2. Local: adrenocorticotropic hormones (cortisone, hydrocortisone, etc.)

C. *Reducing Edema of Cornea*
   1. Systemic: diamox
   2. Local
      a. Hypertonic solutions and ointments (salt, glucose, methylcellulose)
      b. Hot air

FIG. 1—Typical clinical appearance of a well-developed case of endothelial and epithelial corneal dystrophy (Fuchs). The cornea is cloudy, especially in the central parts. The light reflex on the cornea is indistinct and shows bubbles, indicating edema of the epithelium. (Stocker[10])

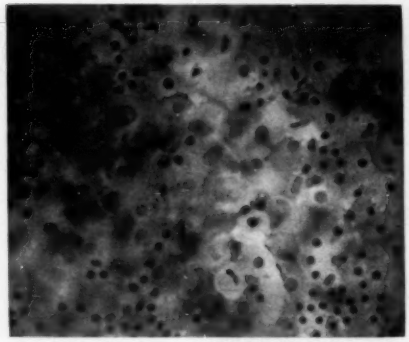

FIG. 2—Flat preparation of corneal endothelium in a case of clinically observed cornea guttata. The small cells with dark, round nuclei represent the normal endothelium. The large cells with round or sickle-shaped nuclei are the degenerated endothelial cells which probably produced the excrescences on Descemet's membrane. The light area in the right upper corner probably represents a wart without endothelial covering. (× 236) (Stocker[10])

There are two approaches to the solution of our problem, a medical one and a surgical one. Medical treatment is based on our knowledge of the physiology of the cornea in general and of the corneal endothelium in particular. There are two main factors to be considered. Since increased permeability of the endothelium for the aqueous humor, with subsequently developing corneal edema, is the basic cause of the visual disturbance, efforts should be directed toward decreasing the permeability of the endothelial layer. Although the corneal endothelium may not be fully comparable to other types of endothelia in the human body, some known facts about the physiology and pathology of the vascular endothelium may well be applied to the corneal endothelium. Numerous investigators have found that such substances as vitamin P, particularly if combined with ascorbic acid, have a tightening effect on capillary endothelia. Cella and Means[3] have explained the effect of these substances in the following way. A deficiency in hyaluronic acid or an excess of hyaluronidase accentuates capillary fragility. Since hyaluronidase is inactivated by vitamin P, the administration of the latter has a tightening effect on the capillary walls. Adrenocorticotropic hormones also are known to decrease capillary permeability and edema. Finally, the edema developing as a result of increased endothelial permeability may be reduced by such physical means as hypertonic solutions, heat and diuresis.

Results of Medical Treatment

With regard to dietary treatment, we can confirm Aubineau's contention that rather frequently increased blood cholesterol levels are found in patients with endothelial dystrophy.[1]

However, we have not observed any definite improvements from low cholesterol and low fat diets. Nevertheless, it may be advisable to prescribe such a diet in this type of case on general principles.

Fourteen cases received treatment with rutin and ascorbic acid. Three failed to show any improvement. Temporary improvement for a period from one to eight months was seen in 9 cases, the average period of improvement being four months. Improvement lasting

for more than a year resulted in 2 cases. The results were confirmed by the fact that the effect could be reproduced by resuming the treatment in those cases in which a relapse had occurred after discontinuation of the medication. The treatment should be continued for months, and possibly years.

Whereas it has been reported by Fulmer[4] that systemic treatment with ACTH or cortisone had no effect on corneal dystrophy, we were quite encouraged by the results of local application of 0.5 per cent to 2.5 per cent cortisone in the form of drops or 1.5 per cent cortisone ointment. Recently we have usually prescribed 0.5 per cent hydrocortisone drops four times a day and a combination of cortisone with an antibiotic ointment at night. In 16 cases under this regimen, improvement of from one to ten months' duration occurred in 8 cases, and 3 cases showed improvement for more than one year. Five cases showed no improvement. Here again it could be observed in several instances that the corneal edema increased after discontinuation of the drug, but diminished again after treatment was resumed.*

*More recently it was found that prednisolone might be even more effective.

As to reducing corneal edema, we have recently discovered that the diuretic diamox (carbonic anhydrase inhibitor) sometimes brings about dramatic results. For details, reference is made to our complete report, which was published elsewhere.[11]

In the first case in which we tried this treatment, vision had improved from 20/400 to 20/40 within two hours after administration of 500 mg. of diamox. In a series of 22 cases, corneal edema had diminished in 18, and visual acuity had improved in 14 cases (table I). The degree of visual improvement in those cases which responded to the treatment is recorded in table II. Obviously this treatment can only be effective before secondary changes such as pannus and

TABLE I

EFFECT OF ORALLY ADMINISTERED DIAMOX (500 mg.) ON CORNEAL EDEMA AND VISUAL ACUITY IN PRIMARY AND SECONDARY ENDOTHELIAL DYSTROPHY TWO HOURS AFTER ORAL ADMINISTRATION (22 CASES)

	NO. OF CASES	
	IMPROVED	NOT IMPROVED
Corneal Edema	18	4
Visual Acuity	14	8

TABLE II

VISION BEFORE AND TWO HOURS AFTER ORAL ADMINISTRATION OF 500 MG. DIAMOX IN THOSE PATIENTS WHO RESPONDED TO THIS THERAPY

PATIENT NO.	EYE	VISUAL ACUITY BEFORE DIAMOX	VISUAL ACUITY AFTER DIAMOX
3	R	20/60	20/40+
3	L	20/70	20/40+
4	R	20/200	[illegible]
5	L	20/400	20/200+
6	R	20/50	20/40
6	L	20/200	[illegible]/100
8	R	20/200	20/100
8	L	20/400	20/80
9	R	20/200	20/70+
12	R	20/70	20/40
12	L	20/70	20/40
13	R	20/40	20/30
13	L	20/400	20/70
16	L	20/400	20/40

FIG. 3—Application of hot air for reducing epithelial edema of the cornea. (Stocker[10])

sclerosis of the stroma have developed. In favorable cases, the response to the drug has been maintained over a period of more than two years. Due to the relatively small and infrequent doses required, side effects are rare and negligible and never have necessitated the discontinuation of the drug. A maintenance dose of more than 250 mg. daily never was needed, and often 250 mg. every other day, or even at longer intervals, sufficed. Since such good results have been obtained with diamox, hypertonic solutions are rarely used any more. They have, however, a definite place in the treatment of corneal edema.

Quite dramatic results may sometimes be obtained by the application of hot air. An ordinary electric hair dryer is held about 12 inches from the eye, and the hot air is blown directly onto the cornea for about five minutes (fig. 3). The improvement in vision can be quite spectacular, from 10/400 to 20/40 in one case and from 20/400 to 20/70 in another. Figure 4 demonstrates the clearing effect on the cornea. While the improvement, of course, is temporary, it may last for hours, and some patients like to use the applications to overcome the morning blur that is usually observed in those cases.

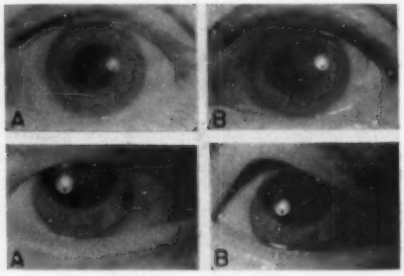

FIG. 4—Clearing of the cornea by hot air treatment in 2 cases. (A) Before treatment in each case. (B) After treatment in each case. (Stocker[10])

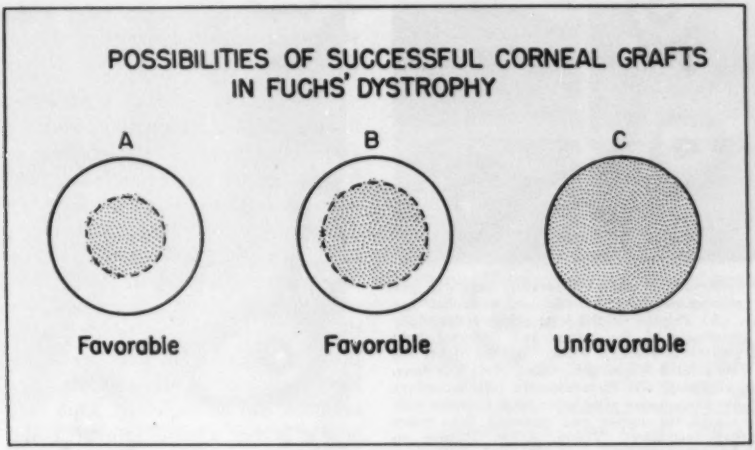

FIG. 5—Schematic drawing. The shaded areas indicate the extent of corneal edema in endothelial and epithelial corneal dystrophy. For transplantations, the size of the graft has to be chosen according to the size of the diseased area (A and B). When the whole cornea is involved (C), the prospects for a clear graft are reduced. (Stocker[10])

SURGICAL TREATMENT

A. *Filtering Operations to Reduce Hydrostatic Pressure*
(Definitely effective only in presence of increased intraocular pressure)

B. *Corneal Transplantation*
1. Nonaphakic eyes: Large perforating grafts, size according to extent of diseased area with or without preceding scraping of endothelium.
2. Aphakic eyes
   a. Lamellar grafts
   b. Mushroom grafts

If all medical treatment fails and intractable bullous keratitis develops, we have to resort to surgery. Filtering operations are indicated in all cases which are combined with increased intraocular pressure, however mild, because in the presence of a diseased corneal endothelium, edema develops much sooner than in ordinary glaucomatous eyes. However, contrary to reports by Vogt[12] and others, we could not confirm lasting beneficial results by filtering operations in the presence of definitely normal intraocular pressure.

Corneal transplantation has long been considered ineffective and even contraindicated in cases of Fuchs's dystrophy as seen from unanimous reports by Castroviejo,[2] Owens and his co-workers,[7] and Roberts.[9] In 1952, however, we were able to report the first two entirely successful cases of corneal transplantation. The previous failures of corneal grafting in Fuchs's dystrophy, including our own, appeared to be due to the fact that a relatively small graft was implanted within a completely diseased and edematous cornea, which provided a very poor environment. Endothelial dystrophy in most cases develops first in the central parts of the cornea as in contrast with the physiologic occurrence of Henle's warts on Descemet's membrane, which are grouped in the periphery of the cornea. If the corneal graft is sufficiently large to comprise most of the severely diseased part of the cornea, the chances of its remaining clear are much enhanced (fig. 5). By choosing grafts as large as 9 mm. in diameter, sometimes even when the whole cornea is involved, fair results may be obtained. In

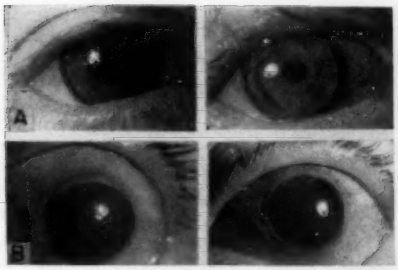

FIG. 6—Results of large perforating grafts in primary and secondary endothelial and epithelial dystrophy. (A) Picture on the left: primary dystrophy with cloudiness of the cornea and distorted light reflex (epithelial edema). Picture on the right: the same case after a 9 mm. perforating graft was done. Vision, 20/20—1. (B) Picture on the left: secondary dystrophy many years after interstitial keratitis with cloudiness of the cornea and distorted light reflex (epithelial dystrophy). Vision, 5/200. Picture on the right: the same case after 9 mm. perforating graft was done. Vision 20/30. Note the four peripheral iridectomies. (Stocker[10])

2 cases which were operated on according to these criteria, vision of 20/20—1 in one eye and 20/30 in the other was obtained by corneal transplantation (fig. 6). In 6 cases out of 7 belonging to the favorable group, good results were obtained, whereas only one out of 5 cases of the unfavorable group was successful and one partially successful. Following a suggestion by Paufique,[8] we scraped the diseased endothelium prior to the corneal grafting, which was performed several months later in 3 cases. Although the results have not been encouraging so far, we should like to defer a definite statement as to the merits of this procedure (table III).

Cases of endothelial dystrophy following cataract extraction require a different treatment. In the absence of the lens, large perforating grafts constitute a rather hazardous undertaking because of the danger of vitreous loss. Here subtotal lamellar grafts, 10 or 11 mm. in diameter, are indicated. While the optical results obtained are never as good as those with perforating grafts, some improvement in vision may result and, at least, relief from the annoying bullous keratitis can be expected. One may ask how it is that a lamellar graft could improve the situation, since the primarily diseased part, Descemet's membrane and endothelium, is not removed. The success is probably made possible by the formation of a thin connective tissue membrane between the recipient cornea and the graft, which seems to act as a barrier to the penetration of fluid into the anterior part of the cornea (fig. 7).

Recently we obtained a good result from a mushroom graft, which consists of a central perforating part and a peripheral total lamellar portion (fig. 8). For the cutting of such grafts, the apparatus described by Franceschetti[5] may be used. We were able to make these cuts satisfactorily by a simple technique without the use of this device. We feel

TABLE III

RESULTS OF CORNEAL TRANSPLANTS IN ENDOTHELIAL AND EPITHELIAL DYSTROPHY

TYPE OF CASES	TYPE OF OPERATION	NO. OF CASES	RESULTS		
			GOOD	FAIR	FAILURE
Primary					
a. Favorable group	Perforating graft	7	6	1	0
b. Unfavorable group	Perforating graft	5	1	1	3
Secondary					
a. After cataract extraction	Lamellar graft	4	0	3	1
	Mushroom graft	1	1	0	0
Totals		17	8	5	4

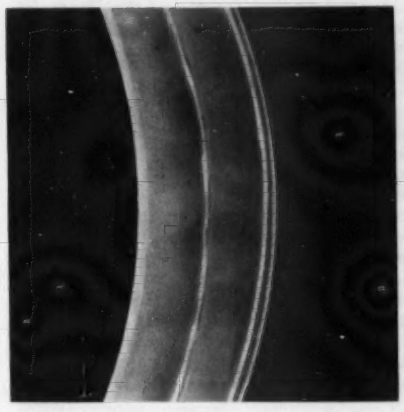

FIG. 7—Appearance of cornea in the narrow beam of the slit lamp after lamellar grafting. The irregular white line in the center represents the division between the recipient cornea and the graft. It consists of fine connective tissue.

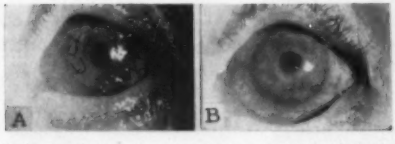

FIG. 8—Mushroom graft in a case of endothelial and epithelial dystrophy after cataract extraction. (A) Ten days after operation. The lamellar part of the graft is held in place by the sutures. The dark central area represents the perforating part of the graft, 4 mm. in diamter. (B) Three months after operation.

encouraged to use this technique in other cases of endothelial dystrophy following cataract operation.

[The presentation was concluded by a short motion picture illustrating some of the technical details which seem to be important in corneal transplantation for endothelial corneal dystrophy. It was shown how the 9-millimeter graft is cut from the endothelial side while the whole cornea of the donor is fixed on a paraffin block. After removal of the corneal disc from the recipient eye, four peripheral iridectomies are performed to reduce the formation of anterior synechias. Finally, the technique used by the author for scraping the endothelium, suggested by Paufique[8] as a preliminary measure, was demonstrated.]

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DISCUSSION

BENJAMIN RONES, M.D., Washington, D.C.: When I was asked to discuss this paper, I accepted with alacrity because of my personal regard for Dr. Stocker and my respect for his clinical and investigative abilities. However, on receipt of his manuscript, and with its repeated reading, I found myself in the unhappy position of disagreeing with him on many issues, some rather fundamental in nature.

The term "dystrophy" is not easy to define, nor is it simple to classify disease entities within this category. However, the Symposium on Corneal Diseases held by this Academy in 1951 made a distinction between dystrophies of unknown origin, in which the Fuchs type is to be placed, and those bullous conditions of known origin for which they suggested that the term "keratopathy" be used. Although this latter condition produces a clinical picture resembling the Fuchs type of dystrophy, the damage to the endothelium resulting from such known causes as surgical trauma, intraocular inflammation, and glaucoma is of a nature entirely different from the "nutritional" impairment of endothelial function of unknown origin. Since this is the case, it is difficult to conceive that the same treatment should rationally be used to combat these dissimilar entities and that comparable results should be expected, as is the case in this study.

Cases of epithelial dystrophy of the Fuchs type show considerable variation both in the amount of corneal edema and the resultant vision, when followed over a period of months. Before evaluating any type of therapy, careful checks of the individual should be kept over a controlled length of time without therapy. The curves should then be plotted for the same case under treatment, and the comparisons made. Without such controls, no claims are valid for the beneficial effect of any type of treatment.

Again I am puzzled by the rationale for Dr. Stocker's use of diamox in this type of disease. With such small doses as 250 mg. per day, it is only possible that the drug is acting as a dehydrating agent by virtue of its action on the kidneys. Considerably larger doses of carbonic anhydrase inhibitor would be necessary for it to act on the eye to diminish the secretory activity of the ciliary body. This being the case, it would be of interest to select one of the mercurial diuretics, such as thiomerin, which have proved to be much more efficient in this respect than diamox, and use it on a control series of cases.

With regard to the use of corneal transplants, I agree with Dr. Stocker that the prognosis is not as unfavorable as it had previously been regarded. Obviously the results will be better in the cases of bullous keratopathy than in those of the true epithelial dystrophy of Fuchs. Nevertheless, the use of larger grafts by Dr. Stocker, the mushroom grafts of Franceschetti, and the surgery of the endothelium and posterior corneal lamellas by Maumenee have added a definite note of optimism to a previously pessimistic picture.

Again I must apologize to Dr. Stocker for my many points of disagreement, and to my audience for adding so little knowledge to the unknown.

A. Ray Irvine, Jr., M.D., Los Angeles: Although the author divides corneal endothelial dystrophy into primary and secondary types, there is considerable doubt whether or not the secondary, or acquired, types should be classed dystrophies. They do not have a hereditary factor. They are often unilateral and may occur in any eye in which the endothelium is subjected to severe insult such as could be expected from anterior chamber hemorrhage, inflammation, or glaucoma. The secondary types usually do not have cornea guttata, and their onset is not characterized by a greater involvement of the central cornea.

These differences between primary endothelial dystrophy and secondary endothelial degenerations suggest the possibility that their response to therapy may also differ. It would be interesting to know whether any such variation in response to the various forms of therapy discussed by Dr. Stocker was noted in these two groups.

The similarities between vascular endothelium and corneal endothelium has been pointed out and used as the rational basis for the use of certain medical therapeutic agents. Perhaps it is worthwhile to designate the differences between these two barriers as a caution against assuming that their response to a particular form of treatment will necessarily be similar. Corneal and vascular endothelium differ embryologically. The corneal endothelium is unique, I believe, in its formation of an elastoid membrane. This membrane stains differently than does the elastic lamina of blood vessels. Senescent changes in the cornea are characterized by hypertrophy of Descemet's membrane, followed by pleomorphism and reduced concentration of endothelial cells. Senile changes in the endothelium and elastic lamina of blood vessels are characterized by cellular proliferation beneath the intima and fragmentation and fenestration of the internal elastic lamina. These differences suggest the possibility that these two types of endothelial barriers might respond differently to a therapeutic agent. Primary endothelial dystrophy is so variable in its clinical course that it is extremely difficult to evaluate a therapeutic agent as partially or questionably effective.

In primary endothelial dystrophy, the central portion of the cornea is affected sooner and to a greater extent than the periphery. If one considers this condition to be a premature senescent change, the periphery of the

cornea should be involved because of the exaggeration of hyaline excrescences in that region. Such a difference in the site of pathologic change in cases of Hassel-Henle warts and cornea guttata suggest that these conditions are unrelated. However, there is some evidence that the concentration of endothelial cells is significantly greater toward the limbus than centrally. This has been observed in flat preparations of the cornea comparing the endothelial cell concentration in these two regions. If these data are valid, then a uniform depression of the endothelium would be expected to reach a critical level centrally, permitting abnormal corneal hydration, before such a state occurred nearer the limbus. This is in keeping with Dr. Stocker's observation that large corneal grafts are effective in the treatment of primary endothelial dystrophy. Because there is no such discrepancy in endothelial cell concentration in the acquired forms of corneal degeneration, it may be that these are not amenable to treatment by the placement of large corneal grafts.

In the study of pathologic material, it has been my impression that altered endothelium is not replaced by normal corneal endothelium. I have never had the opportunity of observing regenerated endothelium following the treatment described by Paufique. It would be surprising if normal endothelium resulted from such a procedure, although it is conceivable that scar tissue could be formed that would act in the same way as the scar tissue in a lamellar graft to prevent epithelial edema.

DR. STOCKER: I should like to thank Dr. Rones and Dr. Irvine for their stimulating discussion. That there are some points of disagreement just adds to the interest of the discussion. As you will see, the differences are actually more apparent than real. I wish, however, that the discussers had added something from their own experience regarding treatment of the condition under discussion, as this was actually the topic.

Dr. Rones has some criticism for the classification using the terms "primary" and "secondary" endothelial dystrophy. I must admit that with only ten minutes at my disposal, I had to make my presentation somewhat streamlined, and I could not enter into a detailed discussion of the various types of damage to the endothelium. If you will read my monograph on "The Endothelium of the Cornea and Its Clinical Implications" in the Transactions of the American Ophthalmological Society of 1954 (pages 697-727), you will see that the various types of diseased endothelium, including their etiology, have been described there.

I would agree that different treatments for the different types might be necessary if we attempted a definite cure of the disease. Since we were discussing only the possibilities for alleviating the symptoms, and since the symptoms are more or less the same whether the endothelium is damaged by a hereditary condition or by some other factor, it is possible that the same treatment may be applicable to both kinds.

Furthermore, so-called secondary dystrophy, such as that occurring after cataract operations, which might be called post-traumatic, is definitely more likely to occur if cornea guttata has existed previously. It is therefore difficult or impossible to make a sharp distinction between the idiopathic form and other forms.

Regarding Dr. Rone's suggestion that mercurial diuretics could be tried, I am glad to say that in June 1955 I presented a paper before the American Ophthalmological Society in which I discussed the role of diamox in the treatment of corneal dystrophies and diseased corneal grafts. A series of cases was reported in which the action of diamox and the action of a mercurial diuretic, mercuhydrin, were compared. It was found that mercurhydrin cleared the cornea, but the results were somewhat better with diamox.[12]

Dr. Irvine pointed out the differences between the corneal endothelium and the endothelium in the vascular system. While I am fully aware of these differences, the fact remains that both types of cells line cavities which contain fluid. They certainly have one common objective: to prevent the fluid from escaping through the walls. The possibility that both types of cells might react somewhat similarly to factors influencing their permeability seemed worthy of investigation. Apparently the clinical results bear out such a similarity.

I agree with Dr. Irvine that the endothelium, once it is destroyed, will probably not regenerate in the same way. This was pointed out by Fuchs in 1917 (v. Graefe's Arch. f. Ophth., 92:145-236). Paufique expects that a connective tissue layer forms on the posterior surface of the cornea, and that this scar will prevent the fluid from penetrating into the cornea. The cornea will be opaque, of course, but not edematous. Paufique's theory is that thus the chances for the graft to remain clear should be enhanced.

GENETIC PROGNOSTICATION AND COUNSELING IN OPHTHALMOLOGY

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THE giving of a genetic prognosis for specific types of ophthalmic disease is, at best, fraught with much responsibility and many pitfalls. A rapidly increasing demand for such service, however, is daily being experienced by the physician. This is a consequence largely of the successes of modern medicine in the control and modification of environmental causes of disease processes. There is, furthermore, a growing and demanding interest in such subjects on the part of an informed public. The discipline of ophthalmology is experiencing a relative increase in the incidence of developmental, degenerative, and hereditary diseases, which increasingly tasks our diagnostic acumen and exposes our lack of knowledge concerning their etiology. The role of the gene as a causative agent of much of such disease must command an increasing awareness and study.

The need for professional advice in hereditary prognostication has resulted in the establishment of heredity clinics, or counseling centers, in over a dozen of our leading medical universities and institutions: (1) University of California, (2) Laboratory of Human Genetics, University of Utah, (3) The Genetics Foundation, University of Texas, (4) University of Oklahoma, (5) Dight Institute, University of Minnesota, (6) Tulane University, (7) Heredity Clinic, University of Michigan, (8) Institute of Genetics, Ohio State University, (9) Hospital for Sick Children, Toronto, Ontario, (10) Department of Medical Genetics, Children's Memorial Hospital, Montreal, Quebec, (11) New York State Psychiatric Institute, (12) Children's Cancer Research Foundation, Harvard University and (13) Bowman Gray Medical School, Winston-Salem.

These clinics are now able to offer to the public established professional consultatory service based on a sound foundation of active research, experience and teaching.

As previously intimated, genetic counseling in ophthalmology can be hazardous. This is especially so, since our fund of knowledge remains embarrassingly deficient despite the fact that our specialty has been blessed with a marvelous background of research in hereditary ocular diseases and is chiefly concerned with a sensory organ which adapts itself to intimate study with precise and accurate instrumentation.

To provide sound advice in problems involving hereditary ocular diseases the physician or counselor must be able to fulfill the following requisites:

1. He must possess a thorough and workable knowledge of the principles of general genetics. This requires careful study and assimilation of genetic principles as established for laboratory material, but it also necessitates actual experience in applying these facts to human data. Genetic problems in man exhibit a certain uniqueness which cannot be appreciated unless the physician has actual experience in the study of hereditary diseases.

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Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

2. The physician should be capable of unquestionably accurate diagnosis of the ocular entities. This, of course, necessitates a well trained and experienced diagnostician.

3. The oculist must have a familiarity with the available published literature pertaining to the specific ocular traits being studied. This literature will provide a background by which he may interpret the seemingly endless minor and major interfamilial and intrafamilial variations of human genetic traits as well as their usual modes of inheritance.

4. The counselor must be able to take a careful and accurate pedigree of the family in which the trait is being studied. He must also provide time for a careful examination of the available members of the family, as well as of the patient, and thus avoid the fatal error of relying on mere hearsay evidence. Human hereditary traits are, furthermore, rather unique in that apparently the same clinical trait may be transmitted by unlike hereditary patterns of transmission in different families. Retinitis pigmentosa—without other systemic association—may be profitably used to illustrate this point, since all of the following modes of inheritance have been reported for this disease: (a) simple autosomal recessive, (b) simple autosomal dominant, (c) sex-linked recessive, (d) partial sex-linked recessive, (e) partial sex-linked dominant, and (f) intermediate sex-linked. *It must be understood, therefore, that just because the literature suggests that a specific disease is inherited in a particular pattern, it does not necessarily follow that this pattern holds true for every family exhibiting the trait.*

5. A meticulous history of the course of the pregnancy with the affected patient must be obtained from the mother. This is particularly important when the physician is confronted with a sporadic case of congenital ocular aberration. Noxious agents, acting during intrauterine development, can lead to ocular pathologic changes indistinguishable from those of genetic origin. Clinically the result is a confounding of genetic disease with a similar but environmentally induced disease (the so-called phenocopy). The eye, in general, is deleteriously affected by various noxious agents which attack the embryo during the first few weeks of life, this being the most rapid period of organogenesis. Minor febrile illnesses of the pregnant mother (e.g., rubella) during the first month are most likely to effect anophthalmia, microphthalmia, congenital cystic eye, and so forth. Such illnesses occurring during the second month are more likely to produce congenital cataract, aberration of retinal differentiation with associated systemic dyscrasias such as deafness, and anomalies of the cardiovascular and central nervous systems. Noxious agents such as rubella, other exanthems, and several of the specific diseases (lues) have been known to pass the placental barrier and produce the above-mentioned errors of ocular tissue differentiation.

6. It is self-evident that the physician should have a feeling for the sensitivities, attitudes, and environment of the client. He must be able to evaluate the relative importance of the trait being studied, in light of its economic, sociologic, psychologic and cosmetic impact. In several ocular conditions it is possible that the individuals may be so superior in other important attributes desirable in our society that the community may actually benefit by their presence. Above all, every counselor must have the courage honestly to admit he doesn't know many of the answers.

Ocular genetic counsel becomes extremely difficult when one is confronted with a sporadic case of congenital or de-

velopmental disease (i.e., a case with parents and siblings normal for the specific trait or disease being studied). In such cases four possibilities must always be kept foremost in mind:

1. The specific anomaly may have been the result of a *mutation* in the germ-plasm of one of the two parents. Contrary to most medical opinion, mutation is a most common source of ocular pathologic change. The mode of transmission of a mutated trait cannot be foretold but always must await a trial of progeny. The answer to the very important problem as to whether the unaffected parents can have other similarly affected children will depend largely upon where and when the mutation occurred. If the mutation occurred during the formation of the gonads (germ cells), then a number of primordial germ cells will possess the altered or mutant gene, and each of these primordial cells will ultimately give rise to gametocytes (ova or sperm), half of which carry the mutant gene. If the mutation occurred only in a single primordial cell, only the descendants of this cell, and then again only half, will possess the mutant gene. The risk of a second affected child is obviously the ratio of the number of mutant bearing gametocytes (ova or sperm) to the total number of gametocytes produced. This ratio is, of course, indeterminate; however, we can say that the earlier the mutation occurred in the chain of events which give rise to the gametocytes, the greater the risk of a second affected child. This risk, in general, will be negligible unless a fairly large sector of a gonad is involved. In the case of sporadic retinoblastoma the physician can only suggest to the parents that they may anticipate the possibility of another affected child within the various frequencies estimated for spontaneous mutation reported for that trait:

1.4×10^{-5}, 2.3×10^{-5}, and 4.4×10^{-6}.

2. The sporadic disease could have been the product of the action of a noxious intrauterine agent. It becomes evident that a careful maternal history of the affected pregnancy is necessary if one is to give a satisfactory appraisal of the situation.

3. The anomalous trait may have been the result of the homozygous state of a recessive gene. In such a case it would have been necessary for each of the two parents to have contributed a similar abnormal gene, thus giving the affected child a double dose (or, as it is said, the child is *homozygous* for the specific gene). Since closely related mates are most likely to possess like rare recessive (hidden) genes, the question of consanguinity becomes of utmost importance as an aid in the diagnosis of such recessive disease states. Most people are reluctant to admit consanguinity (it is illegal in most states) or may only know that such a relationship may exist between them and their spouses. The question of the possibility of consanguinity should be energetically repeated, and often the answer will be in the affirmative if the importance of the information is sufficiently stressed. It should be emphasized here that no medical history is ever complete unless this question has been asked and honestly answered.

4. Failure of penetrance of the gene is a vagary of human inheritance patterns that the physician should always keep in mind and explain to every client. Certain simple autosomal dominant genes (e.g., those determining ectopia lentis) may fail to exhibit phenotypically their presence in the germ plasm of the individual, and as nearly as we can determine clinically, they appear to have skipped a generation. A penetrance rate of 70 per cent has been estimated to exist for the gene determining retinoblastoma. This implies that an adult, the offspring of a retinoblastomatous individual, has a 15 per cent chance of trans-

mitting the gene to his or her offspring despite the fact that clinically this adult individual appears normal for this trait. (This increases to 35 per cent if there exists one affected child.) The prognostication for retinoblastoma transmission may be further complicated by the occasional onset of the tumor late in life.

In the early stages of the preparation of this paper it was hoped to be able to give genetic risk figures for most of the common and rare ocular hereditary entities. A perusal of the literature, however, revealed that such information is not as yet available to our specialty. A plea is made here for our specialty to establish and report incidence rates for most of our clinical entities. The theoretic evaluation of genetic risk rates for ocular traits merely implies the application of mendelian principles in order to estimate the probability that an individual will inherit or transmit a specific altered gene.

The following figures (1-7) illustrate the characteristics of dominant, recessive, and sex-linked recessive ocular traits.

All male offspring of the mating of a normal male and a carrier female have a 50 per cent risk of being affected.

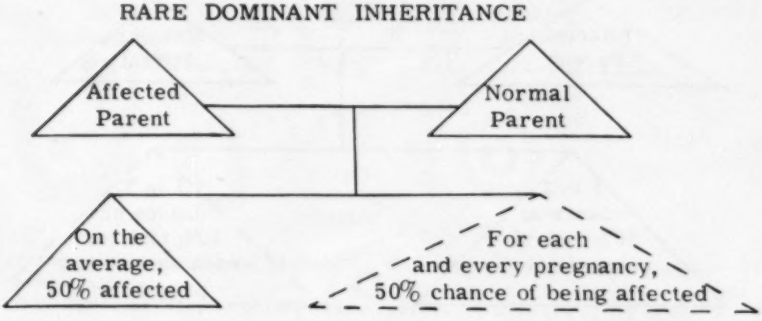
The giving of risk estimates for the transmission of rare ocular traits for which the hereditary patterns are not adequately understood is much more risky and nebulous. The counselor must depend on meticulous twin and specific family research. The objective counselor, in such cases, will warn his clients of the inadequacies of his data and that the estimation of risk is purely empiric.

Dr. Jan A. Böök, in a recent article from which I have freely borrowed, has estimated the empiric risk figures from his Swedish population (table I).

The following classification of some of the more commonplace and rare ocular disorders, outlined as to their mode of inheritance, is given only as a guide to further study.

A. *Dominant Ocular Diseases and Defects*

Genetic risk factor for children of an affected parent is theoretically one


RARE DOMINANT INHERITANCE
Affected Parent
Normal Parent
On the average, 50% affected
For each and every pregnancy, 50% chance of being affected

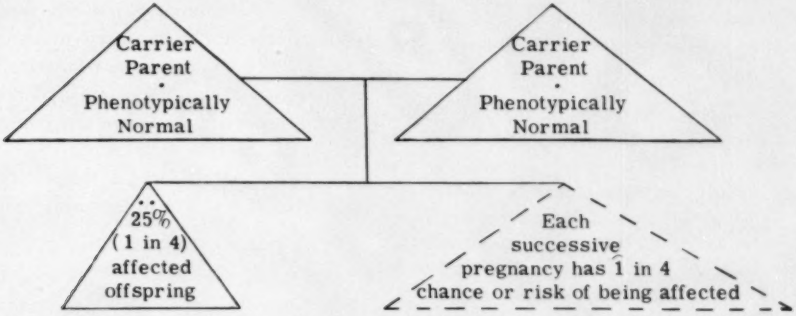
Modified from Böök (Eugenics Quarterly, Vol. 2, 178, 1955)

FIG. 1—A rather rare simple dominant trait having complete penetrance (e.g., aniridia) displayed by one parent.

RECESSIVE OCULAR TRAITS

Both parents appear phenotypically normal but are carriers of one altered gene which, in the offspring in the double dose, becomes clinically detectable.

(a)


Carrier Parent
Phenotypically Normal
Carrier Parent
Phenotypically Normal
25% (1 in 4) affected offspring
Each successive pregnancy has 1 in 4 chance or risk of being affected

Each pregnancy, by chance, has a 1 in 4 probability of being homozygous for the gene.

FIGURE 2.

(b) A mating of one affected parent with a carrier (phenotypically normal) parent results in a 1 in 2 chance, 50% risk of an affected child.

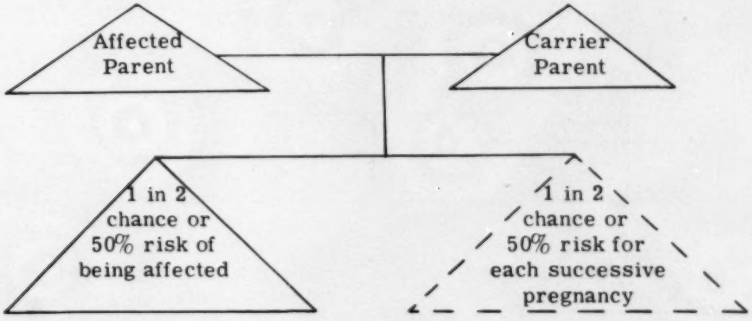

Affected Parent
Carrier Parent
1 in 2 chance or 50% risk of being affected
1 in 2 chance or 50% risk for each successive pregnancy

FIG. 3—Recessive ocular traits, continued.

(c) Mating of one affected parent exhibiting a rare simple recessive trait with the other parent apparently normal.

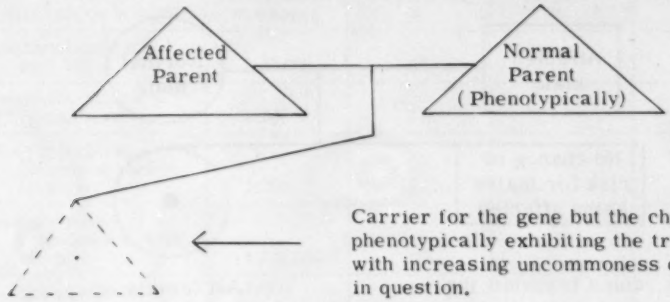
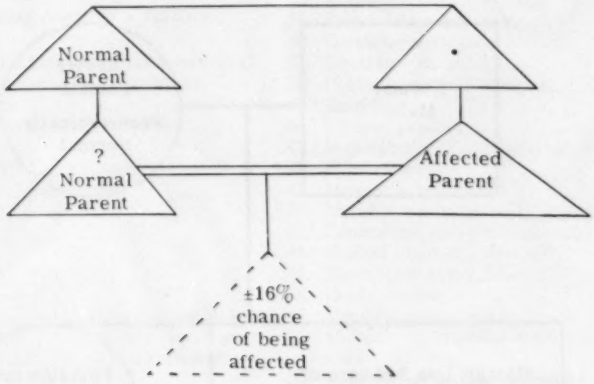

Affected Parent
Normal Parent (Phenotypically)
Carrier for the gene but the chance of phenotypically exhibiting the trait decreases with increasing uncommoness of the disease in question.

FIG. 4—Recessive ocular traits, continued.

(d) Marriage of first cousins, one affected with a rare recessive trait (example, retinitis pigmentosa).



Consanguinity increases the probability of the mates possessing the same deleterious gene.

NOTE: Once an affected child has been produced, the risk is 1:2 in all succeeding pregnancies.

FIG. 5—Recessive ocular traits, continued.

SEX-LINKED SIMPLE RECESSIVE

(a) (Example, color blindness)

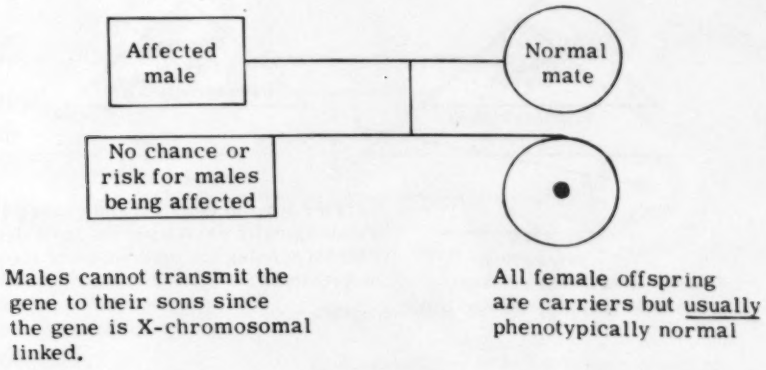

Affected male
Normal mate
No chance or risk for males being affected
Males cannot transmit the gene to their sons since the gene is X-chromosomal linked.
All female offspring are carriers but usually phenotypically normal

FIGURE 6.

(b)

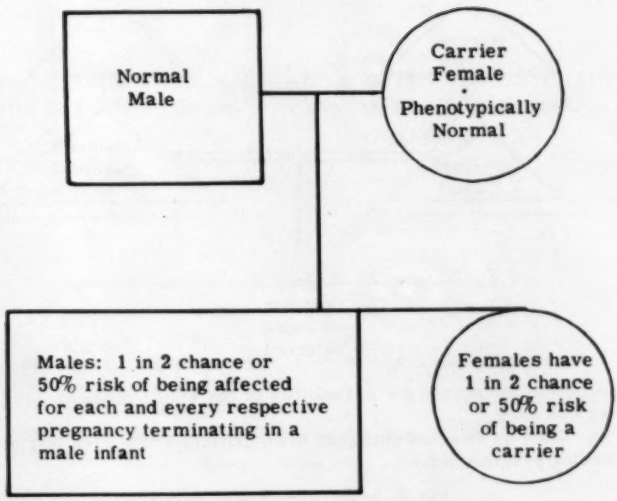

Normal Male
Carrier Female Phenotypically Normal
Males: 1 in 2 chance or 50% risk of being affected for each and every respective pregnancy terminating in a male infant
Females have 1 in 2 chance or 50% risk of being a carrier

FIG. 7—Sex-linked simple recessive traits, continued.

TABLE I

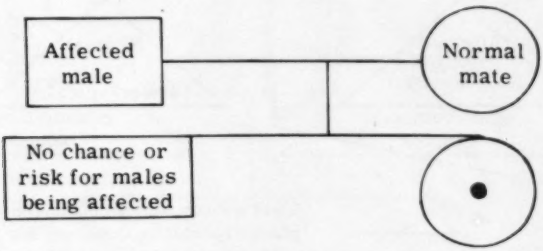
DISEASES OR DEFECTS	APPROXIMATE INCIDENCE IN NEWBORNS	RISK FOR SIBLINGS		RISK FOR CHILDREN OF ONE AFFECTED PARENT %
		BOTH PARENTS UNAFFECTED %	ONE PARENT AFFECTED %	
Congenital cataract with idiocy	1:50,000	15		
Convulsive disorders (grand mal)	1:300	2-4		3-6
Diabetes mellitus (appearing before 50 years)	1:200	15-20		10-15
Microphthalmos or anophthalmos with idiocy	1:100,000	10		
Mongoloid idiocy	1:700	1-4		
Strabismus	1:50	10	17	

chance in two, 50 per cent. This will be reduced, of course, if the gene is not fully penetrant.

1. Congenital stationary night blindness (may occur as a recessive, and sex-linked)
2. Retinoblastoma (70 per cent penetrance)
3. Neurofibromatosis
4. Glaucoma (may occur as a recessive)
5. Astigmatism
6. Hypermetropia (may occur as a recessive)
7. Myopia (may occur as a recessive)
8. Anisometropia
9. Ptosis with epicanthus
10. Isolated ptosis
11. Duane's retraction syndrome
12. External ophthalmoplegia
13. Marcus-Gunn syndrome
14. Esotropia
15. Exotropia
16. Microcornea
17. Cornea plana
18. Keratoconus (carrier state: astigmatism)
19. "Embryotoxon" (Axenfeld's syndrome) (may occur as a sex-linked recessive)
20. Cornea verticillata
21. Granular corneal dystrophy
22. Lattice-like corneal dystrophy
23. Polymorphous endothelial corneal dystrophy
24. Recurrent corneal erosion
25. Diffuse epithelial dystrophy
26. Disciform crystalline dystrophy of cornea
27. Dystrophia annularis
28. Ectropia lentis
29. Total congenital cataract
30. Posterior polar cataract
31. Sutural cataract
32. Anterior axial embryonal cataract
33. Lamellar cataract (may occur as a recessive, sex-linked recessive)
34. Central cataract—coppock, pulverulenta, annular
35. Presenile nuclear sclerosis
36. Coralliform cataract
37. Floriform cataract
38. Presenile cortical cataract
39. Aniridia
40. Ectopia pupillae
41. Hyperplasia of mesodermal leaf of iris
42. Flocculi iridis
43. Heterochromia iris
44. Macular coloboma with apical dystrophy
45. Generalized choroidal sclerosis
46. Central choroidal sclerosis
47. Medullated nerve fibers (?)
48. Best's disease
49. Retinitis pigmentosa
50. Macular dystrophies with atrophic reactions
51. Generalized fundus dystrophy
52. Congenital optic atrophy
53. Epicanthus
54. Blepharochalasis
55. Coloboma of lower lid (Franceschetti's syndrome)
56. Xanthelasma
57. Melanosis of the eyelids
58. Distichiasis

SEX-LINKED SIMPLE RECESSIVE

(a) (Example, color blindness)

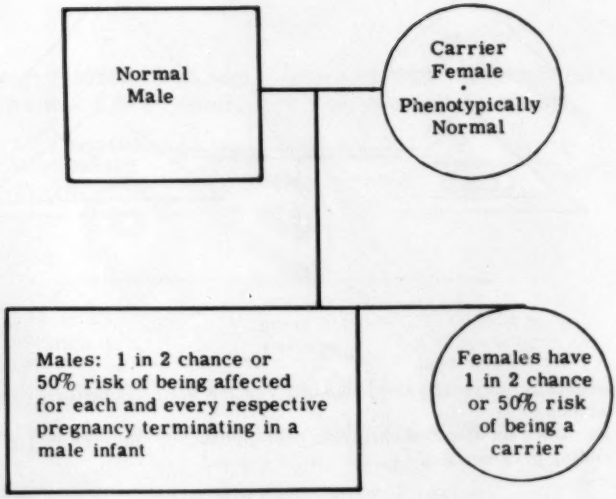


Males cannot transmit the gene to their sons since the gene is X-chromosomal linked.

All female offspring are carriers but usually phenotypically normal

FIGURE 6.

(b)


Normal Male
Carrier Female
Phenotypically Normal
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Females have 1 in 2 chance or 50% risk of being a carrier

FIG. 7—Sex-linked simple recessive traits, continued.

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48. Best's disease
49. Retinitis pigmentosa
50. Macular dystrophies with atrophic reactions
51. Generalized fundus dystrophy
52. Congenital optic atrophy
53. Epicanthus
54. Blepharochalasis
55. Coloboma of lower lid (Franceschetti's syndrome)
56. Xanthelasma
57. Melanosis of the eyelids
58. Distichiasis

59. Syndrome of embryonic fixation (Waardenberg)
60. Adult dacryocystitis (female predilection)
61. Congenital lacrimal obstruction
62. Dermolipoma
63. Pterygium
64. Episcleritis fugax
65. Alkaptonuria (may occur as a recessive)
66. Dominant cystinuria (may occur as a recessive)
67. Porphyrinuria (may occur as a recessive)
68. Pentosuria (may occur as a recessive)
69. Diabetes mellitus (may occur as a recessive)
70. Albinism and albinoidism (may occur as a recessive, sex-linked recessive, sex-linked intermediate)
71. Pyle's disease
72. Achondroplasia
73. Craniocleidodysostosis
74. Spondylitis rhizomelique
75. Oxycephaly
76. Apert's syndrome
77. Crouzon's syndrome
78. Mandibulofacial dysostosis
79. Hypertelorism
80. Friedreich's spinal ataxia
81. Marie's cerebellar ataxia
82. Myotonica dystrophica
83. Status dysraphicus
84. Word blindness
85. Angioneurotic edema
86. Migraine (female predilection)
87. Familial icterus
88. Polycythemia vera
89. Hyperthyroidism
90. Hypertension
91. Eddowes' syndrome
92. Arachnodactyly
93. Sjögren's syndrome
94. Epiloia
95. Lindau's syndrome
96. Sturge-Weber syndrome
97. Mongolian idiocy
98. Malignant melanoma of choroid

B. *Recessive Traits*

The affected individual is presumed to be homozygous for the gene (double dose). The genetic risk for subsequent siblings of the affected to be similarly affected is one chance in four, or 25 per cent.

1. Albinism
2. Congenital total color blindness (may occur as a dominant and sex-linked)
3. Hydrophthalmos (males)
4. Microphthalmos
5. Anophthalmos
6. Glaucoma (may occur as a dominant)
7. Myopia (may occur as a dominant, sex-linked)
8. Hyperopia (may occur as a dominant)
9. Ophthalmoplegia (may occur as a dominant)
10. Cornea plana (may occur as a dominant)
11. Keratoconus (may occur as a dominant)
12. Kayser-Fleischer ring (Wilson's disease)
13. Corneal macular dystrophy
14. Juvenile epithelial dystrophy of cornea (may occur as a questionable dominant)
15. Ectopia pupillae with ectopia lentis (may occur as a questionable dominant)
16. Spherophakia (Marchesani's syndrome)
17. Congenital total cataract (may occur as a dominant)
18. Ectopia pupillae (may occur as a dominant, sex-linked)
19. Nonreacting pupils
20. Generalized choroidal sclerosis (may occur as a dominant)
21. Congenital night blindness with myopia
22. Oguchi's disease
23. Retinitis punctata albescens
24. Monochromatism
25. Retinitis pigmentosa (may occur as a dominant, sex-linked recessive, etc.)
26. Macular dystrophy with atrophic reaction (may occur as a dominant)
27. Juvenile macular atrophy (may occur as a dominant, recessive sex-linked)
28. Macular dystrophy with exudative reactions (may occur as a dominant)
29. Gyrate atrophy
30. Congenital infantile optic atrophy (rule out Albers-Schönberg disease)
31. Alkaptonuria (may occur as a dominant)
32. Cystinuria (may occur as a dominant)
33. Porphyrinuria (may occur as a dominant)
34. Pentosuria (may occur as a dominant)
35. Albinism (may occur as a dominant, sex-linked recessive, intermediate sex-linked)
36. Infantile amaurotic idiocy
37. Juvenile amaurotic idiocy
38. Late infantile amaurotic idiocy
39. Late juvenile amaurotic idiocy
40. Schüller-Christian disease (?)
41. Osteochondrial dystrophy
42. Gaucher's disease
43. Gargoylism (may occur as a sex-linked recessive)
44. Osteopetrosis
45. Laurence-Moon-Biedl syndrome
46. Friedreich's ataxia (may occur as a dominant)
47. Marie's cerebellar ataxia (may occur as a dominant)
48. Schilder's disease

49. Wilson's disease
50. Hereditary spastic diplegia
51. Moebius syndrome
52. Xeroderma pigmentosa
53. Icthyosis (may occur as a dominant)
54. Epidermolysis bullosa
55. Hypoparathyroidism
56. Pseudoxanthoma elasticum
57. Rothmund's syndrome
58. Werner's syndrome

C. *Sex-linked Recessive*

All of the daughters of an affected male may be assumed to be carriers for the trait and thus capable of transmitting the gene to 50 per cent of their male offspring, who will be affected. The daughters of carrier females have a 50 per cent risk of being carriers.

1. Myopia (may occur as a recessive, dominant)
2. Congenital night blindness with myopia (may occur as a recessive, dominant)
3. Color blindness (protanopia, deuteranopia)
4. Retinitis pigmentosa (may occur as a dominant, recessive, etc.)
5. Congenital cataract (may occur as a recessive, dominant)
6. Sex-linked macular degeneration (may occur as a dominant, recessive)
7. Congenital total detachment of retina
8. Leber's disease (?)
9. Albinism of the eye alone
10. Gargoylism (without cloudy cornea)
11. Pelizaeus-Merzbacher disease
12. Mental deficiency with microphthalmos
13. Congenital anhidrotic ectodermal dysplasia (may occur as a dominant)
14. Megalocornea (may occur as a dominant)

D. *Intermediate Sex-linked*

The daughters of an affected male are all carriers of the trait but in addition disclose a detectable clinical change. Male offspring of carrier females have a one in two chance of being affected, 50 per cent risk; their daughters a one in two chance, 50 per cent risk, of being carriers.

1. Retinitis pigmentosa (carrier state: tapetal reflex)
2. Ocular albinism (carrier state: sparse cocoa brown pigment)
3. Choroideremia (carrier state: atrophic retinal mottling)
4. Keratosis follicularis spinulosa cum ophiasis (mild form in female carrier)
5. External ophthalmoplegia (absence of knee jerks in female carrier)

CONCLUSIONS

There are no "cookbook answers," to quote Neel and Schull, in the giving of ophthalmic genetic counsel. Each problem and the particular family involved must be meticulously individualized. The medical counselor must possess a willingness to recognize and appreciate the limitations of his data. Professional genetic counseling service is available to the medical profession and laity in many of our leading universities.

DISCUSSION

PAUL THOMAS MANCHESTER, JR., M.D., Atlanta: The paper of Dr. Falls is both informative and timely. I am reminded of his presentation here two years ago on the subject "Clinical Detection of the Genetic Carrier State." The two papers seem to fit closely together and to form a most useful reference guide.

Certain inherited eye defects can always be considered as dominant until they have been proved to be otherwise. The most remarkable of these is retinoblastoma. The responsibility of the ophthalmologist goes beyond diagnosing and treating this disease. A retinoblastoma survivor must be advised that 50 per cent of his children will probably develop the same condition. Despite the fact that there is incomplete penetrance of this trait, as mentioned by Dr. Falls, Dr. Algernon B. Reese has found that cases on record show an incidence even higher than 50 per cent.

Another condition practically always dominant is primary glaucoma of both the open angle and angle closure types. All patients with primary glaucoma should be closely questioned about other members of their family. Dr. Kenneth Roper found a wide variation in the reports of how often it is familial. Probably 15 per cent of patients with primary glaucoma will give a positive family history. Occasionally patients go to an ophthalmologist because several members of their family have glaucoma. In such instances, an awareness of the dominant tendency of this defect should stimulate us to attempt to diagnose

the condition in it incipiency. Even if all findings, including results of provocative tests, are negative, there still remains the serious possibility of early glaucoma being present in this type of patient.

Of the sex-linked group, Leber's hereditary optic atrophy and choroideremia are prominent. One extremely valuable and useful bit of advice which we may give to a man affected by either of these conditions is in reference to the fact that there is almost no chance that any of his children, male or female, will develop it. From the eugenic point of view, the patient perhaps should not have children, because some normal ones may carry the abnormal gene; however, this would be of little interest to most patients.

The most frequent genetic question raised by the patient and his relatives has to do with the statistical odds that any future children may be affected. If the trait is dominant, we usually expect one parent to be affected. The patient can be advised that the odds are that any child of his will have roughly a 50 per cent chance of developing the same eye disease, provided, of course, that the patient marries a normal person who is not carrying the defective trait also. A similar answer may be given to all other affected members of the family. As for the unaffected relatives, their children should all be normal but for the occasional exception due to incomplete penetrance of a gene. Dr. Falls has already discussed this problem.

If we consider the recessive eye anomalies, the parents of the affected patient should be informed that their next child has probably a 25 per cent chance of being affected; that is, the mendelian rule of 1:4 holds because we know that the parents of an individual who exhibits a recessive trait must both be carrying an abnormal gene. The patient himself will most likely have children with completely normal eyes unless he marries a person who also carries the specific defective gene. The same rule holds true for the other relatives, either normal or affected.

If the eye defect is sex-linked recessive, the patient should have a child with normal eyes, although half of his daughters will be carriers. Parents of the patient can be warned that their next child has a 25 per cent chance of being affected; that is, if it happens to be a son, he has a 50:50 chance of developing the disease, but if it is a daughter, her eyes will be normal, although she may be a carrier. As for the other females, the aunts and the sisters, their chances are really less than 25 per cent because they have only a 50 per cent possibility of being carriers.

DR. FALLS: In closing I should like to reiterate that the gene determines the limits to which the eye, and the body as well, may respond to its environment. Every ocular function and structure is under enzymatic control. These enzymatic actions are gene controlled, and the more awareness of this fact the ophthalmologist possesses the better diagnostician he will be.

The ophthalmologist will be materially aided from both a diagnostic and a prognostic viewpoint if he will but take the time to examine the patient's parents and relatives, who so frequently clutter up our office waiting space. Many of these individuals will present the same entity as your patient, perhaps in a more easily recognizable late or early state.

I wish to thank Dr. Manchester for so capably contributing to the information presented in this lecture.

POSTERIOR SCLEROTOMY AND AIR INJECTION IN THE TREATMENT OF FLAT ANTERIOR CHAMBERS FOLLOWING CATARACT EXTRACTION

LAWRENCE H. LASSITER, M.D.
CHICAGO, ILLINOIS
BY INVITATION

IT is generally accepted that a flat anterior chamber following cataract extraction predisposes the eye to the development of secondary glaucoma because of the formation of peripheral anterior synechias. This has also been confirmed in a statistical survey at the Illinois Eye and Ear Infirmary by Pearlman,[7] who found a 0.9 per cent incidence of secondary glaucoma in 1,112 aphakic eyes in which the anterior chamber remained formed throughout the postoperative course, a 4 per cent incidence of secondary glaucoma in 165 eyes in which the anterior chamber remained flat for five days or less, and a 19 per cent incidence of secondary glaucoma in 59 eyes in which the anterior chamber remained collapsed for six days or more.

In our experience, flat anterior chambers following cataract extraction fall into two broad groups. The first group includes relatively few cases in which the anterior chamber fails to re-form during the immediate postoperative period. This is usually caused by gaping of the corneal wound, often associated with inclusion of extraneous ocular tissue between the lips of the wound. Such collapsed anterior chambers usually reform promptly following surgical repair of the wound. The second group consists of a larger number of cases in which the anterior chamber forms immediately after operation, but after from seven to ten days insidiously becomes shallower and finally collapses. In some cases, this seems to be due to fistulization around a deeply placed suture which has been left in place for longer than twelve days, and the anterior chamber usually re-forms soon after removal of the suture. In other cases, the iris bombé effect described by Chandler and Johnson[5] seems to be present and is relieved by wide dilatation of the pupil. Other cases seem to respond to miotics such as fluoropryl. Our experience with the use of diamox is as yet inconclusive.

If the anterior chamber remains flat for several days, a combined detachment of the retina and choroid is usually seen peripherally in one or more quadrants. Fluid accumulates in the suprachoroidal space, as described by Barkan in 1915,[1] probably by transudation from choroidal veins.[2-4] Although the anterior chamber may re-form in the presence of a combined detachment or may even remain formed from one to three weeks while a small choroidal detachment appears and regresses, the presence of a large combined detachment seems to be associated with retarded re-formation of the anterior chamber. This may be a result of decreased aqueous formation, as pointed out by Kronfeld,[6] possibly because of detachment of the ciliary body. Another explanation may be that because of wound leakage, the vitreous is displaced anteriorly, forcing the iris forward against the cornea, thus forming a pupillary block by the vitreous face.[2]

From the Department of Ophthalmology, Illinois Eye and Ear Infirmary of the University of Illinois College of Medicine.

Presented at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

Bellows' group believes that the choroidal detachment is due to transudation from choroidal veins resulting from vascular stasis.

Because continued absence of the anterior chamber for more than five days is associated with a considerable increase in the incidence of secondary glaucoma, and because the presence of a combined detachment may be an aggravating factor,[1,6] it has been our practice in recent years to treat these refractory cases by means of a posterior sclerotomy for evacuation of the suprachoroidal fluid, combined with air injection into the anterior chamber. This type of procedure was suggested by Chandler[3] in connection with flat anterior chambers following glaucoma operations, and again in 1953 at the symposium on cataract extraction.[4] Both air injections and posterior sclerotomy have been suggested by previous writers[8,9]. Bellows[2] states that posterior sclerotomy results in increased aqueous flow. In addition, the evacuation of suprachoroidal fluid helps restore the normal position of the ciliary body and allows the vitreous to shift posteriorly so that pupillary block is relieved. Softening of the eye permits injection of air into the anterior chamber with less hazard of rupture of the wound.

TECHNIQUE OF OPERATION

An incision one centimeter long is made through the conjunctiva and Tenon's capsule parallel to and 7 mm. from the limbus in the quadrant in which the combined detachment is greatest (fig. 1). A 3 mm. to 5 mm. incision is made through the sclera meridionally in the region of the pars plana with a Bard Parker knife, Graefe knife, or keratome. Chandler believes that a trephine should be used so that the sclerotomy will remain open and continue to drain.[3,4] Xanthochromic fluid in surprisingly large amounts escapes when the suprachoroidal space is entered (fig. 2). When fluid ceases to escape, air is injected into the anterior chamber. This can be done by way of a cyclodialysis approach through the scleral incision, either using a blunt lacrimal needle or a Randolph spatula. Air can also be injected through a previously made Ziegler knife puncture in the cornea. Sufficient air is injected to re-form the anterior chamber to the angles, but excessive amounts may force air behind the iris, or rupture the wound. The sclerotomy wound itself is not closed—only the conjunctiva.

RESULTS

A total of 26 persistent cases of flat anterior chamber have been treated at the Illinois Eye and Ear Infirmary by the technique just described. Those available for study were carefully screened to rule out other complicating factors such as pre-existing glaucoma, iritis, or other postoperative complications. Fifteen eyes met these criteria and are the basis of this evaluation. In this group, the anterior chamber had been flat for an average of ten days (range of six to twenty days) prior to surgical intervention. Only one procedure was necessary to restore the chamber in each case. Seven remained formed and deep without further incident following the operation. Four had a transient period of shallowness and then spontaneously became of normal depth. Two re-formed but had a recurrence of the flat anterior chamber lasting six and nine days respectively. In 2 cases, air was noted behind the iris on the first postoperative day, but the anterior chamber returned to normal depth when the air bubble resorbed. Follow-up examinations from eleven to thirty-three months following this procedure revealed no cases of postoperative glaucoma, and water provocative tests were

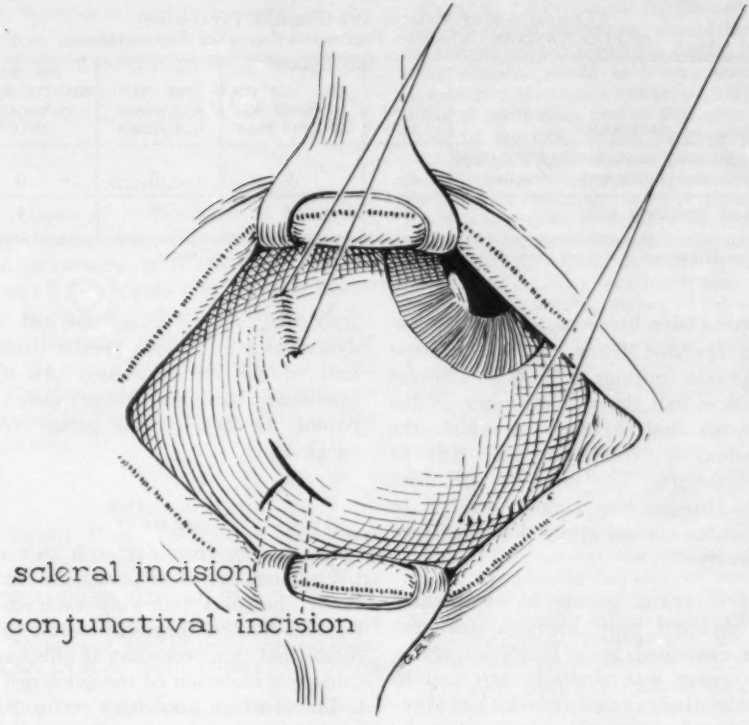

FIGURE 1.

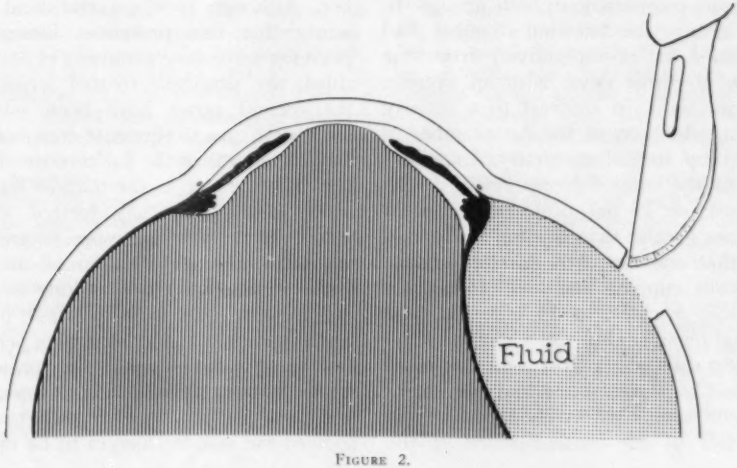

FIGURE 2.

TABLE I

COMPARISON OF MEDICAL AND SURGICAL TREATMENT OF FLAT ANTERIOR CHAMBERS FOLLOWING CATARACT EXTRACTION

TECHNIQUE	NO. OF CASES	AVERAGE NO. OF DAYS FLAT	PER CENT SECONDARY GLAUCOMA	PER CENT POSITIVE WATER PROVOCATIVE ONLY*
Evacuation of suprachoroidal fluid and air injection into anterior chamber	15	10	0	0
Medical treatment only	36	4	19	14

*A rise of tension 8 mm. or more following the ingestion of 1,000 cc. of water.

normal (table I). Gonioscopic examinations revealed 4 cases in which dense peripheral anterior synechias involved less than half the circumference of the trabecula and 2 cases in which the synechias involved more than half of the trabecula. The incidence of these angle changes was almost identical to that in the control group described subsequently.

As a control group, 36 eyes which had received only medical treatment were examined in a follow-up study. This group was similarly screened to exclude those cases which had preexisting glaucoma or significant postoperative complications other than the flat anterior chamber. The follow-up period was comparable in both groups. In this group, the anterior chamber had remained flat postoperatively from one to twenty-three days, with an average of four days, in contrast to a ten-day average duration of the flat chamber in the group treated surgically. Examination of the control group revealed that 7 cases, or 19 per cent, had repeated tensions greater than 30 mm. (Schiøtz), and that one case had developed glaucomatous cupping and loss of field. In addition, 5 cases, or 14 per cent, had normal tensions, but the water provocative test showed a rise of 8 mm. or more (table I). Eleven cases had peripheral anterior synechias involving less than one half of the circumference of the trabecula, and 4 cases showed such synechias over an area greater than one half of the circumference. As stated previously, the angle changes were comparable to those in the group treated surgically.

COMMENT

Experience thus far with this relatively small series of persistent flat anterior chambers following cataract extraction treated surgically seems to indicate that this procedure is effective in causing a recession of the combined detachment which may delay re-formation of the anterior chamber. Evacuation of the suprachoroidal fluid also facilitates injection of air into the anterior chamber. Although to claim statistical certainty that this procedure lessens or prevents secondary glaucoma is not justified, the surgically treated series and the control series have been selected with some care to eliminate complicating factors other than the flat anterior chamber. The damage to the outflow mechanism in the surgically treated group would presumably be more severe because the average duration of the flat chamber was 2.5 times as long as that in the control group. With this in mind, one might expect more extensive peripheral anterior synechias in the surgically treated group, although gonioscopic examination of the eyes in both groups showed the visible changes to be essen-

tially the same. It would appear that the functional embarrassment of the outflow mechanism was greater in the medically treated cases even though the anterior chamber had been flat for a shorter period of time.

CONCLUSIONS

In cases of late collapse of the anterior chamber following cataract extraction associated with combined detachment of the choroid and retina, a posterior sclerotomy with evacuation of the suprachoroidal fluid plus air injection into the anterior chamber appears to aid in the restoration of the anterior chamber and in the prevention of secondary glaucoma.

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DISCUSSION

PAUL A. CHANDLER, M.D., Boston: With adequate wound closure and special care that the sutures are not placed too deeply, flat anterior chamber should be a very uncommon complication of cataract extraction, yet it continues to occur from time to time, even in the hands of the most skillful surgeon. It is a most undesirable complication from the standpoint that it predisposes the eye to glaucoma. Furthermore, while the anterior chamber is flat it is impossible to mobilize the pupil, and in cases of severe postoperative iritis, posterior synechias to the hyaloid membrane or even inflammatory pupillary membrane may result. In cases of dystrophy, contact of iris and hyaloid with the cornea may cause serious corneal complications. Flat anterior chamber is a notable predisposing factor to pupillary block. In fact, I have not seen pupillary block in cases where a full iridectomy was done, unless it had been preceded by a flat anterior chamber. One may see the usual flat chamber with a separated choroid. If nothing is done, the chamber may form later but remain shallow. Eventually the choroidal detachment disappears and tension rises to normal or above normal. The moment the tension rises to normal the situation has changed from ordinary flat chamber to pupillary block. Prolonged flat chamber is thus undesirable from many standpoints. I agree with the author that it should not be neglected.

For many years I have treated flat chamber in a fashion similar to that described by the essayist, opening the sclera to release subchoroidal fluid and injecting air into the anterior chamber in all cases in which there was not an obvious dehiscence of the wound. I have always introduced the air through a slanting incision in the lower cornea. The scleral opening has usually been made 10 or 12 mm. back of the limbus, and I have employed a 1.5 mm. trephine for this purpose. I have known two or three cases in which, when a simple knife incision was made through the sclera, the anterior chamber remained flat. I have thus far not known the procedure to fail in re-formation of the chamber when the sclera is trephined. It seems possible that in some cases it is necessary for continued drainage of subchoroidal fluid to occur, to assure re-formation of the anterior chamber.

I have made it a practice to interfere not later than the fifth day of flat anterior chamber. The procedure is simple and safe, and the patient is not required to stay in the hospital more than twenty-four to forty-eight hours longer. The potential sequelae of prolonged flat anterior chamber may be so serious

that it should never be neglected. One may be able to refer to a case in which the chamber remained flat for two or three weeks but in which no complications ensued. This is small comfort to the patient whose chamber was flat for a much shorter period but who may have eventually lost his eye from glaucoma or other complications directly due to prolonged absence of the anterior chamber.

I heartily endorse the procedure described by Dr. Lassiter.

JACK S. GUYTON, M.D., Detroit: Dr. Lassiter is to be complimented on his excellent presentation. Its barely restrained enthusiasm reflects his obviously high personal evaluation of posterior sclerotomy and air injection.

My own enthusiasm for this procedure is only lukewarm, and I will therefore try to present the other side of the picture. I do this with some apology, because I do not want to detract from Dr. Lassiter's excellent study. Nevertheless, I believe there *is* another side to the picture.

My personal experience is limited to not more than six cases in which I have either used this combined procedure or seen it utilized. In two of these cases, in which the chambers were surgically re-formed after having been flat for nine days and ten days, respectively, and in which no other complicating factors were apparent, the eyes nevertheless developed glaucoma approximately one month afterward. I mention these two cases merely as evidence that this procedure is not always efficacious in preventing glaucoma secondary to flat chamber.

We must be exceptionally careful in drawing conclusions from a small number of cases. Dr. Lassiter very properly does not claim statistical certainty that this procedure prevents or even lessens glaucoma. However, his figures do give one that strong impression, especially if the water test is regarded as a reliable index of incipient glaucoma, and more especially if one ignores his gonioscopic findings of substantially the same peripheral anterior synechiae in the two groups. It should be mentioned, therefore, that there are two potential elements of statistical bias in his tabulated data.

First, the mere setting up of arbitrary criteria to exclude any cases other than those with pre-existing glaucoma, no matter how rigorously and honestly applied to both groups, can of itself constitute a statistical bias, in comparing such small series. I would like to ask Dr. Lassiter how many of the 11 cases excluded from the surgically treated group were excluded because of complications other than pre-existing glaucoma, and whether any of these developed glaucoma or had a positive water test.

Second, the control series was not drawn from a strictly consecutive series of medically treated flat chambers. Consequently, the glaucoma itself could have been the influencing factor in determining whether certain of the seven patients with glaucoma would return for the follow-up examination.

Bellows, Lieberman and Abrahamson (cf. A.M.A. Arch. Ophth., 54:170-178, 1955) recently reported a study of flat anterior chambers. In 500 cases studied following cataract extraction, they found 51 cases of flat chamber lasting five days or more. If these are screened to exclude 3 cases surgically treated and 6 cases in which glaucoma might well have resulted from other complications (iris prolapse, hemorrhage, lens remains and vitreous loss, or combinations of these), there remain 42 medically treated cases, of which only 2 developed glaucoma.

Hughes and Owens (cf. Am. J. Ophth., 28:40-49 [Jan.] 1945), in a study of 2,086 consecutive cataract extractions, attributed postoperative glaucoma to flat chamber in only 4 cases. There were 19 other cases in this series with flat chamber persisting more than seven days, none of which developed glaucoma. Posterior sclerotomy was not used for flat chamber in this series, although air injection alone occasionally was.

If these figures were averaged in with those cited by Dr. Lassiter, flat chamber would not appear so important a cause of glaucoma.

Now, posterior sclerotomy and air injection involves opening the globe, and then injecting air inside the eye, at a time when the cataract incision is not firmly healed. It therefore involves putting the patient through a surgical procedure which is not without hazard and is of a complexity fully comparable to that of a later cyclodialysis; and in my very limited experience, the rare cases of glaucoma resulting from flat chamber alone have uniformly proved amenable to cyclodialysis. I would like to ask Dr. Lassiter whether there were any complications ascribable to posterior sclerotomy and air injection in the 26 cases he studied, and especially whether there was any loosening or gaping of the incision, when it was not freshly sutured beforehand, from injecting the air.

Despite the objections I have raised, it is clear that flat chamber can cause glaucoma and that prompt re-formation of the chamber should prevent this. Furthermore, Dr. Las-

siter's gonioscopic observations suggest air injection may free incipient synechias which have not had time to become firm.

All things considered, I find myself in the position of having no strong conviction as to whether air injection should be employed frequently or seldom, though leaning slightly toward the latter. I believe air injection alone, or combined with posterior sclerotomy, probably should not be utilized except as an adjunct to placement of fresh mattress sutures across the incision. I prefer to resuture with air injection alone unless the choroidal detachment is unusually large. I incline to such a procedure only if the entire periphery remains flat from four to fourteen days, depending on whether the eye is more inflamed or less inflamed than average.

DR. LASSITER: I wish to thank Drs. Chandler and Guyton for their discussion. Dr. Guyton has brought up some interesting questions.

First, about the gonioscopic findings. I would refer Dr. Guyton to the Eighth Proctor Lecture by Dr. Peter Kronfeld. It is very difficult to relate the functional condition of the outflow mechanism to the gonioscopic picture in aphakic eyes. That is why we did not attempt to draw more conclusions from the gonioscopic findings in these eyes than we did.

We do not think or claim that air injection into the anterior chamber breaks the anterior synechia, although this is a comforting thought. We merely reported our gonioscopic observations.

Now to the first question regarding the nature of the cases which were excluded. On the original work sheet were a large number of cases. Some of them had only air injection, and one or two had saline injections. Of course all of these were excluded. The only cases reported were those which had posterior sclerotomy and air injection, of which there were 26. Eleven cases were not included in this series. The reason for failure to report the majority of these cases is that they did not respond to repeated requests to come in. Three patients who were examined were not included in the series: one had excessive iris and a massive hyphemia; two had known glaucoma before, so very few were excluded because of pre-existing glaucoma.

The exact purport of Dr. Guyton's second question is not clear to me, but I get the impression that he is concerned lest some of the control cases with glaucoma noted in the postoperative period may have had preoperative glaucoma, too, and thus statistical bias was developed. Control cases were selected completely at random from those who had had a flat anterior chamber within the past five years.

Were any complications attributable directly to the posterior sclerotomy and air injection? No. There were one or two cases that had air injection alone in which the wound was ruptured. That is the reason for the remark made during the course of the paper that posterior sclerotomy softens the eye so that air injection is less hazardous.

No complications from posterior sclerotomy as such have been noted. And in closing may I say that we do not claim a statistical certainty that posterior sclerotomy and air injection is the end of secondary glaucoma, but just that from the small series of cases reported here, the data seem to indicate that the incidence of secondary glaucoma may be decreased somewhat.

ALLERGIC DISEASES OF THE EXTERNAL EYE

HARRY B. STAUFFER, M.D.
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CASES of allergy are abundant in the practice of ophthalmology largely because our civilization has become more and more complex, with new drugs, cosmetics, plastics, and vast industrial plants. We are constantly exposed to new allergens and more allergic problems result. It has been pointed out before that antigens and antibodies are not recognized with the ordinary microscope and that swollen and weeping tissues usually are not excised for histologic examination. However, with the rapid method of staining, as outlined by Hansel, cytology has been made easy and can be used when there is doubt as to whether the case is one of allergy or of infection, or both.

A complete clinical history is in my estimation the most important basis for the diagnosis of allergic diseases of the eye. Some manifestation of allergy elsewhere in the system may precede or accompany that which appears in the eye, and the previous or present administration of drugs and serums, either local or general, can be of definite significance. Occupation and a history of exposure to pollen, chemicals and other irritants are likewise important facts to have in mind.

For many years we were content to mix ophthalmic drugs in water or saline, and this combination was in itself irritating. Use of buffered solutions has been a great step forward, but even yet preservatives used in solutions of this type can cause sensitivity in some cases.

A chemosis may be set up by many conditions which cause an increased permeability of the small conjunctival vessels, such as drugs, animal and vegetable products, and systemic diseases. Exposure to horse dander may result in edema of the bulbar conjunctiva, loss of markings of conjunctival vessels, and a tendency for the conjunctiva to overlap the limbus. In extreme cases, the edematous conjunctiva may protrude between the lids when they are closed, and it may be necessary to evacuate the accumulated serum by means of numerous small radial incisions.

The patient with ragweed hay fever has a typical bilateral conjunctival congestion accompanied by itching and excessive lacrimation. Patients sensitive to tree and grass pollen also may exhibit these symptoms during the season when these pollens are present.

Bilateral edema of the tissues about the eye in one case led me to suspect that something was being used in the eye. The patient was found to be sensitive to antihistaminic eye drops. All reaction subsided within a few days after the drops were discontinued; the edema promptly recurred when the solution was again used.

Patients who have had repeated attacks of iritis may become sensitized to atropine. In case of atropine sensitivity, substitution of scopolamine for atropine is indicated. I believe the patient should always be advised when atropine is the cause of sensitivity so that its future use can be avoided. The same thing applies when a butyn reaction occurs. Continued use of these drugs can sometimes become disastrous.

Patients with glaucoma sometimes become sensitive to miotics. One patient

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has had bilateral subluxated lenses for several years and is quite sensitive now to eserine.

Frequently after cataract surgery, patients become sensitized to atropine or penicillin that is used locally. Recently, after an intracapsular extraction, the patient developed such a sensitivity. (Slide) Note the scaling of the lids as the reaction subsides after withdrawal of the drug.

Acute infection in the lids is always differentiated from allergic edema by the presence of a maximum point of tenderness. These patients should be given systemic penicillin or other antibiotics, not penicillin ointment. We have almost entirely eliminated the local use of penicillin in the eye.

When edema is due to drug sensitivity, no pain is present. There is an absence of pus or infection of the conjunctival sac. In one of my cases, the offending allergen was aureomycin ophthalmic ointment.

Acute conjunctivitis will always show gross pus in the conjunctival sac, or it can be seen in early cases or doubtful cases if the eye is examined with the slit lamp. This type of case can be cured in forty-eight hours by use of hot applications plus 30 per cent sodium sulfacetamide. Certain cases require bacitracin ointment applied once daily at bedtime. Very few patients are sensitive to sodium sulfacetamide or bacitracin. Many patients, however, are sensitive to ophthalmic ointments containing penicillin and sulfathiazole, or become sensitized to them. Acute attacks of this nature may be produced by sporadic contact with a variety of agents, especially inhalants such as animal dander, feathers, and cosmetics. Plant oils should also be considered as offending antigens.

Materials used in industrial plants must be considered in certain cases; e.g., a man who handles leather in a shoe factory proved to be sensitive to the dye in the leather. Lifebuoy soap and a compound called Scat, used in many factories, are frequently a source of facial allergy and dermatitis. Plain ivory soap is indicated. It contains no perfume or other substances which can act as allergens.

One of the most common of all eyelid allergies is sensitivity to finger nail polish, either the colored variety or clear polish. Removal of the nail polish cures these patients in a few days' time. Women always tell you, "Why I have used this preparation for years and I'm sure it couldn't be at fault." You must carefully explain that a point of tolerance has been reached and that the tissues have suddenly become sensitized. One of my most interesting cases of nail polish sensitivity occurred in a patient who didn't use any polish on her nails. I was completely baffled for about ten days until suddenly one day she asked me, "Do you suppose the nail polish I put on the rough nose pad of my glasses could be the source?" No clear or colored nail polish on fingers or toes, but here it was on the glasses, as close to the eye as it could get! This also leads me to warn you that some people are sensitive to plastics and metals. Spectacle frames may be a source of contact allergy, particularly when metal frames are damaged by perspiration.

One woman acquired a sensitivity to an artificial eye made of plastic. In this case the eye had to be replaced with one made of glass. Plastics used in dentures often cause lesions in the mouth.

As a general rule, too great a quantity of eye drops is included in a single prescription; they last far too long, and contamination results or chemical changes take place in the solution. This is a source of trouble. Zinc sulfate, which is used so widely in eye prescriptions,

sometimes produces a dermatologic reaction. Eye drops cause lesions at the inner canthus, whereas ointments usually cause lesions of the lids or lid margins.

Penicillin administered systemically frequently causes a reaction of the skin of the face, ears, feet, and even the entire body. I use a bland ointment consisting of 5 per cent zeroform, 8 per cent zinc oxide, and 8 per cent starch, in vaseline, for these generalized cases of exfoliative dermatitis.

A word about cosmetic allergy. If the patient has quit using any cosmetics on the face and the dermatitis still persists on the eyelids or on the area behind the ears, and if he looks at you with that "I told you so" look, inquire about the use of hand lotion, or substances such as Duz or Oxydol used in dishwater or laundry. Most of these cases of contact dermatitis come from the fingers.

Marginal blepharitis is thought by many to have an allergic background. Protein substances and toxins generated in the growth of bacteria and pathogenic molds are generally accepted as being capable of producing allergic reactions in the skin of the eyelids or in the conjunctiva. Cosmetics may also play a part. Staphylococcus toxoid and dust and mold vaccine may be used in many of these cases with good results. Frequently these patients also show dry scales and a dermatitis of the ear and the ear canal. Cosmetics frequently cause edema of the lips as well as reactions of the skin of the face and eyelids.

One of my patients is sensitive to everything; he has had hives from foods and asthma of severe degree from feathers, and he is quite sensitive to drugs. He has had exfoliative dermatitis from penicillin, and recently he experienced a massive swelling of the tongue within twenty minutes after he had taken some aureomycin capsules by mouth for a head cold. I gave him an isuprel tablet to dissolve on his tongue, and some 1:1000 adrenalin subcutaneously when he arrived at the office. Following this medication, I injected 7.5 grains of aminophyllin intramuscularly. This seemed to control the edema somewhat. During the next twenty-four hours the patient developed some edema of face and lips, but there was never much respiratory embarrassment.

Gill stated in 1948 that a pterygium may be due to a physical allergy to light, heat, or dust.

Acne rosacea is a relatively common disease of the skin of the face, characterized in its early stages by transient attacks of vasodilation on the nose and cheeks, which ultimately became permanent. The disease usually occurs in adults between 20 and 30 years of age and tends to die out in old age. Digestive troubles generally are thought to play a prominent part in etiology. Thus, we feel that the disease is an allergic response to an endogenous toxin which occurs typically in a subject with some metabolic instability. When rosacea extends to the cornea it becomes a serious disease.

Vernal conjunctivitis, or spring catarrh, is a recurrent bilateral interstitial inflammation of the conjunctiva of seasonal incidence. The palpebral form attacks the tarsal conjunctiva of the upper lid. In the bulbar or limbal type, discrete lesions may appear around the cornea. The disease is associated with itching (no itching, no vernal conjunctivitis), redness of the eyes, lacrimation, and a mucinoid discharge which usually contains many eosinophils. The most striking point in its incidence is its seasonal character: it is a summer disease, and during the winter months the patient is free of it. In hot countries it tends to persist all year round. It is a disease which is most common to young people and is rare in people past 40

years of age. On the whole, the most plausible theory of its causation is that it is a conjunctival manifestation of an allergy, the irritating agent being dust aggravated by dry heat, occurring preferentially in vagotonic individuals. Its general etiology thus resembles that of phlyctenular conjunctivitis, but whereas the latter is due to an endogenous bacterial intoxication, vernal conjunctivitis is exogenous and abacterial. Corneal involvements are not uncommon. There is no specific treatment, but best results are obtained by immunization to dust and mold combined with endocrine therapy. Cortisone also may be combined with the other treatment.

Viruses, according to Duke-Elder, have antigenic properties that differ very little from those of bacteria, and there may be an allergic factor in these herpetic lesions. (Slide) This shows a typical case of herpes zoster, class 1. The eye is usually involved in this type of herpes. When the cornea is involved, diffuse corneal scars usually result.

A white girl, age 14, developed a mild conjunctivitis of the left eye. A physician prescribed an antiseptic and called the infection "pink eye." Throughout the following week the patient noted that only the upper lid on the left was swollen, but tenderness and swelling of preauricular gland on the left side developed. The submaxillary gland also was beginning to enlarge. Temperature was 101 degrees F., and this typical granulomatous conjunctival surface was present beneath the upper lid. Temperature remained elevated for about three weeks and all laboratory studies were negative. No inclusion bodies were found in scrapings from the conjunctiva. This girl had been sleeping with a cat for the past several years. This is a typical case of cat-scratch disease or Parinaud's oculoglandular syndrome, first described in 1889. Antigen was first prepared in 1945 for diagnosis of this disease.

In 1937, Behcet, a dermatologist, identified as a distinct entity a disease presenting three cardinal symptoms: first, stomatitis; second, superficial ulcerations of the external genitalia; and third, iridocyclitis with or without hypopyon. In addition, there might be an associated erythema nodosum and high fever in some cases. These patients usually were anemic, had headaches, and were extremely nervous. Some patients developed signs of meningoencephalitis. Stevens and Johnson also described a similar triad. Both triads are probably caused by a virus.

Phlyctenular keratoconjunctivitis is a characteristic nodular focal affection occurring mainly in children, but sometimes it is found in adults showing some metabolic defect. Its occurrence is also associated with unhygienic conditions and insufficient diet. It is an allergic response by the corneal and conjunctival epithelium to some endogenous toxin to which they have become sensitized. The lesion is a solid pustule instead of a vesicle, as the name might imply. These phlyctenules are accumulations of lymphoid cells about the size of a millet seed at the limbus. It is not uncommon to find these lesions on the conjunctiva, cornea and limbus at the same time. The relation of the disease to tuberculosis is a controversial point. Some men feel that a well-healed tubercle in the lung may, under lowered resistance, release antigen which travels through the blood stream and lodges at the capillary loop on the limbus, forming phlyctenules. Treatment consists of rest, proper diet and sometimes tuberculin injections. Autogenous vaccines, plus dust and mold and staphylococcus toxoid are helpful. Cortisone recently has been found to give good results when used locally.

Episcleritis fugax, or "hot eye," is characterized by a diffuse congestion and edema of a portion or quadrant of the episcleral tissue and the conjunctiva over it. It is of very transient character and has a strong tendency to recur at regular intervals. Allergy to specific articles of food has been said by some to be a common cause. A further interesting association is attacks occurring with menstruation. Focal infection of nose, throat, and teeth can also play a large part in the disease, and tuberculoprotein cannot be ignored.

Nodular episcleritis is a disease of obscure origin occurring in adults or old people. It tends to be chronic and recurrent but is of a benign tendency. It is characterized by the appearance of localized inflammatory foci in the episcleral tissues. The nodule is purplish, round or oval, and very sensitive to touch. The etiology is obscure, but the vast majority of patients also are rheumatic or have focal infection. One can predict that when a joint flares up, the scleral nodule may soon appear. Rheumatism, therefore, may be an allergic phenomenon, and these inflammations are anaphylactic in nature. Tuberculosis and syphilis should always be ruled out. Cortisone is now the treatment that gives the best results, combined with dilatation of pupil, and in many instances, patients say that their joints feel better while using cortisone locally in the eye.

Uveitis is divided into the nongranulomatous and the granulomatous types. In the former, there is sharp onset with marked inflammation. Iritis usually involves only one eye at a time. Photophobia and pain are almost always present. Most cases show an irregular pupil, which indicates that synechias are present. In this disease, we are dealing not with an actual invasion of the tissues by the living organism responsible for the disease but apparently with a sterile allergic reaction. Cortisone, together with atropine, adrenalin and cocaine, injected into the conjunctiva is the one quick way to get the iritis under control, in my estimation. This breaks up synechias and produces a round pupil. Early iritis can resemble an acute conjunctivitis or one of the contact allergies. Iritis is also frequently diagnosed as acute conjunctivitis in the early stages.

In the granulomatous form of uveitis there is usually no pain; no redness; only dimness of vision. This disease tends to affect the entire uveal tract, while the nongranulomatous form confines itself mostly to the anterior part of the eye. Keratic precipitates may be seen on the posterior cornea, the vitreous is cloudy, and the retina and choroid may be involved by actual invasion of the tissues by the infecting organism. The course of the disease and the degree of acute inflammation are dependent upon the degree of systemic immunity and tissue hypersensitivity that may either be present from a previous infection or develop as a result of the present one. In one interesting case of uveitis, skin lesions appeared on the patient's leg. When the skin lesions flared up, the eye developed keratic precipitates and a cloudy vitreous; then it would clear entirely until the dermatitis flared up again. The cause of this granulomatous condition is usually tuberculosis, syphilis, sarcoidosis, Malta fever, or toxoplasmosis.

(Slide) Here is an interesting case of sarcoidosis of the eye. Note the relatively mild injection or circumcorneal inflammation. The nodule between 4 and 5 o'clock at the limbus is actually on the iris in the anterior chamber. The patient was a 24-year-old Negro woman. The chest roentgenogram was quite typical of sarcoidosis, a soft infiltrate of each hilum extending out to the periphery on each side. The apical areas were fairly clear. This patient came to me because

of blurred vision and not because of any chest symptoms. Again I want to point out the relatively quiet reaction of the eye to the granulomatous form.

One patient, a white male, age 45, was seen in 1947 after he had developed a severe macular (central) choroiditis of his left eye and had lost all central vision. Recently I saw this patient again because of central serous retinopathy of the normal right eye. This serous retinitis followed a tetanus antitoxin (A. T. S.) injection given after removal of a splinter from his finger. Retinopathy occurred on the tenth day after A.T.S. injection and was accompanied by a severe case of hives. Fortunately the lesion cleared in about two weeks and vision is now normal.

It is common knowledge that during hay fever season or other pollen seasons, the lens of the pollen-sensitive patient becomes swollen. This has been observed by many investigators. It has also been observed at times that an extracapsular lens extraction or injury to the lens which releases lens substance into the anterior chamber will cause a patient to become sensitized to his own lens substance. Therefore, if the fellow eye is ever operated upon, he may need desensitization to lens substance. The ideal situation is a preventive one: care should be exercised to remove the lens intact in its capsule.

The last allergic phenomenon we will mention is sympathetic ophthalmia. Wounds of the ciliary body may set up a sympathetic inflammation in the other eye and both eyes may be lost. This grave complication has been thought by some to be due to a sensitivity to uveal pigment similar to the lens protein sensitivity.

I hope that I have been able to point out to you that allergy is everywhere and that a great deal of it pertains to ophthalmology.

HISTOLOGIC FINDINGS IN AN EYE WITH SCLERAL RESECTION

JOHN S. MCGAVIC, M.D.
BRYN MAWR, PENNSYLVANIA

THIS patient was a 59-year-old white male who noted slight blurring of vision in his right eye during the summer of 1952. Two months later he suddenly noticed marked blurring of vision. He recalled no injury. He was examined by several oculists but no treatment had been given.

One year later, in October 1953, he was admitted to the Wills Eye Hospital on the service of Dr. P. R. McDonald. At that time his vision in the right eye was limited to ability to count fingers at two feet temporally. The left vision was 20/30 plus, without correction.

There was a serous detachment of the lower half of the retina, with a hole near the periphery at the 10 o'clock meridian.

On October 16, 1953, a lamellar scleral resection was done from 7 to 10 o'clock, about 14 mm. behind the corneoscleral junction. Diathermy applications were also employed. No subretinal fluid was obtained. When a trephine opening was made 20 mm. back from the limbus, vitreous presented in the opening and little subretinal fluid was released.

Following the operation, the retina did not settle back in place. A tumor was suspected because the central area appeared to have a solid detachment of the retina.

On November 2, 1953, seventeen days after operation, the right eye was enucleated on the basis of a tentative diagnosis of intraocular tumor.

Horizontal calottes were cut perpendicular to the scleral resection, which extended from 7 to 10 o'clock, 14 mm. from the corneoscleral junction. A small piece of tissue was excised from the area of the resection and imbedded in paraffin. Sections of this specimen showed no tumor tissue.

MICROSCOPIC EXAMINATION

There is some hyperemia and lymphocytic infiltration in the circumcorneal area.

The anterior segment of the globe is essentially normal. There are ciliary processes arising from the posterior surface of the iris. The lens is in place and its capsule intact.

The ciliary body itself is normal, but it is detached and swung inward on its attachment to the scleral spur. The detachment is greater on the side opposite the operative wound, and there is fluid between the ciliary body and adjacent choroid and the sclera. Only a little fluid is present on the side of the scleral operative wound. There is cystic degeneration of the nonpigmented epithelium of the pars plana ciliaris just anterior to the ora serrata.

In the sclera there are two sites of interest. One represents the buckling of the sclera at the site of the lamellar resection, and near this is the trephine opening into which retinal tissue and vitreous extend. Just external to the trephine opening there is a space containing partially sequestrated scleral tissue, inflammatory and foreign body giant cells, suture material, and necrotic cho-

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roidal tissue. The giant cells contain pigment granules as well as engulfed foreign material.

Just posterior to the trephine wound is the site of the diathermy application which has caused marked destructive reaction in the choroid and outer layers of the retina. Only the distorted nerve fiber layer of the retina is preserved.

Just anterior to the trephine wound there is another diathermy site at which the application has perforated the retina and caused a chorioretinal adhesion on each side of the perforation. A small piece of retina is folded back on itself at the posterior border of this site. A third diathermy site shows complete destruction of the retina with only a thin strand of glial tissue bridging this area. The underlying choroid is edematous and hemorrhagic, and shows marked destruction of the stroma and scattering of the pigment from the chromatophores and from the overlying pigment epithelium of the retina.

Sections cut at different levels show varying degrees of destruction of the sclera, choroid and retina by the diathermy. There is a considerable amount of cellular reaction in the episcleral tissue. Fragments of suture material can be seen; these seem to lie away from the scleral tissue in areas of necrotic tissue and cellular infiltration. This suggests that the scleral sutures would tend eventually to pull out and allow the sclera to resume its original position.

A few sections show a small amount of subretinal fluid. One would conclude that the retina was elsewhere in contact with the choroid. There is elevation of the retina overlying the operative site. Here there is an excess of sclera, which is buckled inward, and scar tissue extends external to the wound. However, the retina is in place except for the small area previously noted. The pigment and destroyed area of choroid and the chorioretinal adhesions would appear dark clinically.

There are no bands visible in the vitreous cavity. Vitreous can be demonstrated only where it extends into the operative wound.

The optic nerve head is normal. No tumor is present in the eye.

SUMMARY

This specimen shows the histologic findings in an eye seventeen days after lamellar scleral resection. Diathermy sites and a trephine wound are also demonstrated. Clinically the retina had appeared not to be reattached but the microscopic sections show several chorioretinal adhesions and only a small amount of subretinal fluid. There is an elevation of the retina due to buckled scleral tissue. This together with the dark areas due to dathermy applications accounts for the semblance of a solid detachment of the retina which caused the clinician to suspect an intraocular tumor and prompted him to enucleate the eye.

INSTRUMENTS FOR TRANSTYMPANIC SURGERY, INCLUDING TRANSINCUDAL STAPEDOLYSIS (STAPES MOBILIZATION)

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LOS ANGELES, CALIFORNIA

THE increased interest in surgical procedures within the external auditory canal and the middle ear (transincudal stapedolysis)[1] has made it necessary to design several special instruments for these manipulations. Instruments previously used have been wholly or partly adapted from dental or ophthalmic instruments, which are not properly designed for this small tortuous and angulated surgical field. (See figures through 8.)

Instruments for use in the canal or tympanic cavity must be so angulated and weighted that motions are transferred without significant loss of mechanical advantage or interference with visualization. Such instruments should have short handles so that contact with headlights or the lenses of loupes or microscopes may be avoided.

The following instruments have been designed with these needs in mind; they are angulated, weighted, and shortened. They are made of stainless or chrome steel, and they have been equipped with serrated handles for good digital grip.

SUMMARY

Several new instruments are presented for use in transtympanic surgery, including transincudal stapedolysis (stapedial mobilization).

REFERENCE

1. Goodhill, Victor: Trans-incudal stapedolysis for stapes mobilization in otosclerotic deafness (under audiometric control): a surgical technique for improvement of hearing in otosclerosis is described, utilizing new methods in the stapes approach. Laryngoscope, 8:693-710 (Aug.) 1955.

From the Department of Otolaryngology, University of Southern California School of Medicine, and the Otologic Laboratories, Institute for Medical Research, Cedars of Lebanon Hospital and Childrens Hospital.

Presented as a *New Instrument* at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

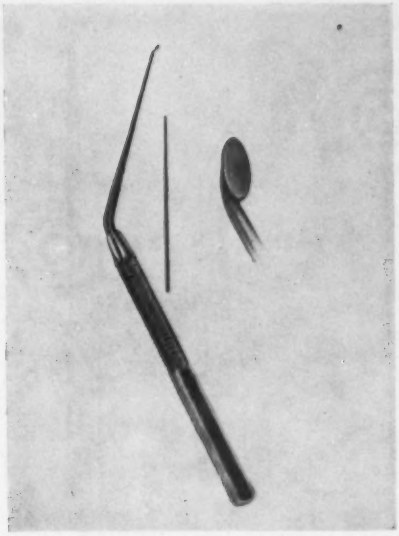

FIG. 1—The small angulated circumferential scalpel which is used for the initial incision, severance of periosteal adhesions, and elevation of the fibrous annulus from the tympanic sulcus.

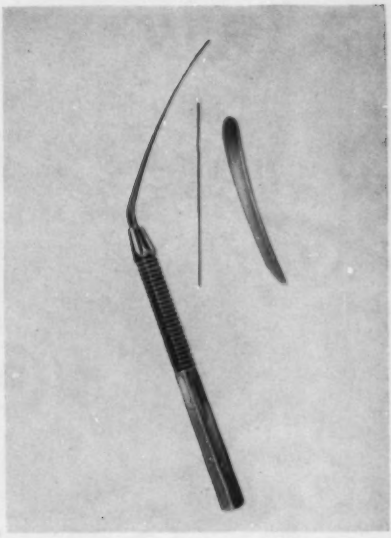

FIG. 2—A delicate curved periosteal elevator, useful in elevation of the dermal periosteal flap in any transcanal or transtympanic procedure.

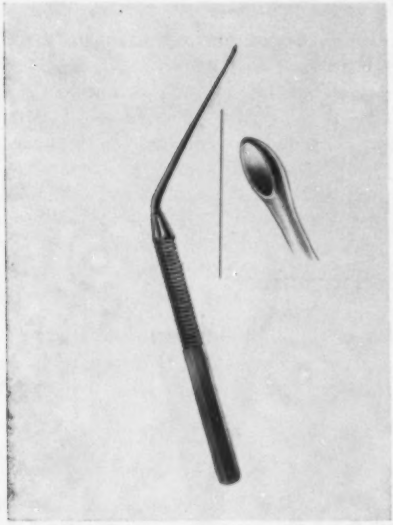

FIG. 3—A small spoon-shaped 5-0 curet for use in removal of bone from the tympanic annulus to afford exposure of chorda tympani nerve and the incudostapedial joint in stapedolysis procedures.

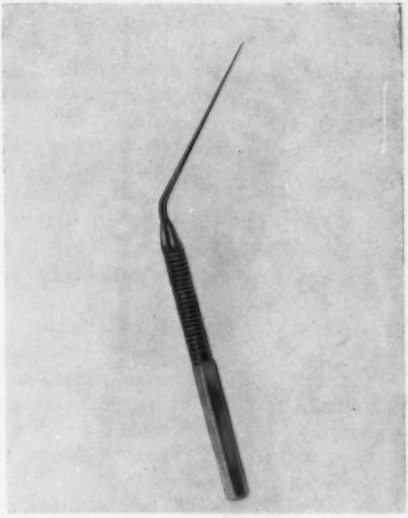

FIG. 4—The incus needle-probe which is used in the procedure of transincudal stapedolysis. This needle-probe is engaged within the incudal periosteum for the purpose of transmission of force through the incus to the stapedial capitulum, as illustrated in figure 5.

FIG. 5—Technique for use of the incus needle-probe illustrated in figure 4.

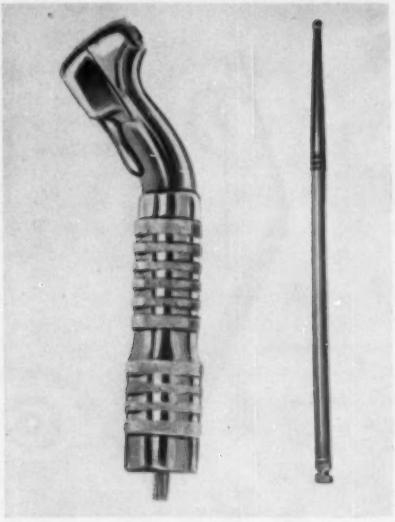

FIG. 6—A specially tooled polishing burr for insertion into a contra-angle attachment to a dental handpiece. This allows the use of the burr through an ear speculum without interfering with vision.

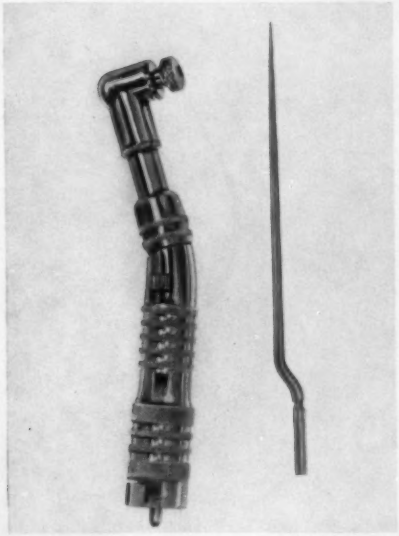

FIG. 7—An offset "microvibrator" for insertion into an "amalpak" automatic dental hammer attachment to a dental handpiece. This microvibrator is applied to the lenticular process of the incus to transmit force to the ankylosed stapedial footplate.

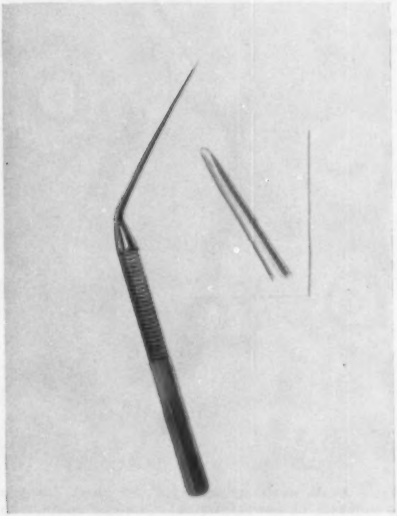

FIG. 8—A footplate chisel. This is an angulated narrow chisel for footplate lysis techniques.

MAGNETIC TANGENT SCREEN

GEORGE D. SPENCE, M.D.
CHARLOTTESVILLE, VIRGINIA

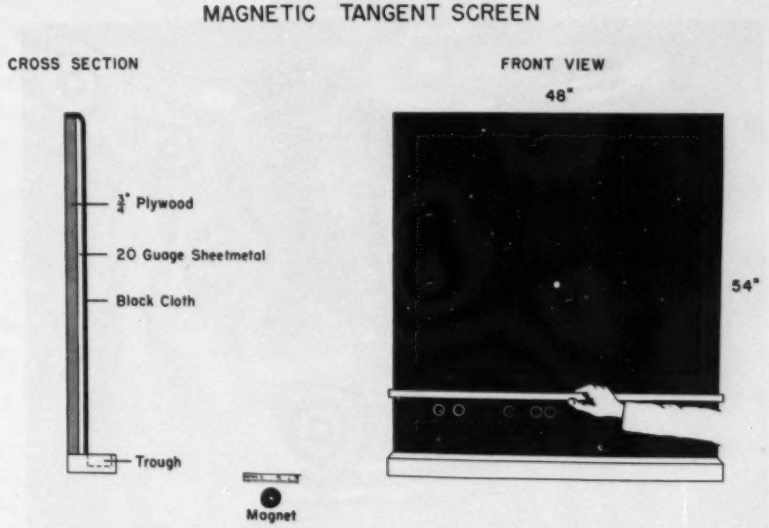

FIGURE 1.

THIS magnetic tangent screen eliminates the tedious removal of pins after each examination (fig. 1). Small Alnico magnets are used as markers.* The screen is made by sandwiching a layer of sheet metal between a backing of plywood and a black cloth stitched with the tangent screen design. The magnets are simply raked down to the bottom of the screen with a long wooden stick after the findings have been recorded.

The ¾-inch plywood is available in a standard width of 48 inches. The vertical length of the screen is 54 inches, which allows room at the bottom for storage of magnets and for a wooden trough to catch the occasional magnet which loses its grip while being pushed down. The 20-gauge sheet metal is nailed to the plywood. The cloth is glued to the metal and tacked to the edge of the plywood. The edges are then covered with strips of wood molding. The conventional felt cloth is too thick, causing the magnetic attraction to be reduced. Indianhead cotton cloth, which is somewhat heavier than broadcloth and quite durable, is satisfactory. The fixation target should be painted with white textile paint because a raised fixation point, such as a button, will interfere with raking the magnets down. The magnets may be easily painted with flat black enamel by attaching them to a piece of scrap metal and painting over them.

Presented as a *New Instrument* at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, October 9-14, 1955, Chicago.

*The Alnico magnets, Stock No. 4Y61P4, are available from Permag Corporation, 214 Taafe Place, Brooklyn 5. Thirty magnets cost about five dollars. White textile paint is available at hobby and art supply shops.

ILLUMINATION FOR LENSOMETER

MORRIS BOTVIN, M.D.
PROVIDENCE, RHODE ISLAND

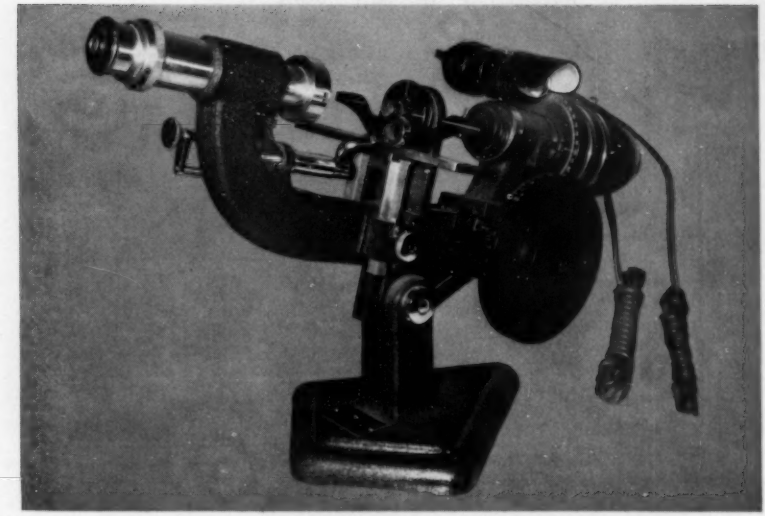

FIG. 1—Illumination for lensometer.

THE use of the lensometer in the semidark refracting room made it difficult to see the graduations on the protractor and power wheels. Reaching for a flashlight to illuminate the markings became a nuisance; a gooseneck lamp was bulky and always in the way, and it put too much unwanted light into the refracting room.

With a few minor modifications, a locally purchased sewing-machine light can be attached to the lensometer itself. A screwdriver is the only tool required, and the operation takes about two minutes. The accompanying photograph shows the light mounted on the lensometer (fig. 1). The light effectively illuminates only the protractor and power wheels of the lensometer and throws no extraneous light into the room.

It is hoped that this light may soon be purchased directly from the manufacturer by those interested.

Presented as a *New Instrument* at the Sixtieth Annual Session of the American Academy of Ophthalmology and Otolaryngology, Oct. 9-14, 1955, Chicago.

TRANSACTIONS

American Academy of Ophthalmology and Otolaryngology

Official Publication of the American Academy of Ophthalmology and Otolaryngology
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HENRY L. WILLIAMS, Rochester, Minnesota, *Associate Editor*
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All communications regarding the TRANSACTIONS should be addressed to
William L. Benedict, M.D., LL.D., Executive Secretary-Treasurer,
American Academy of Ophthalmology and Otolaryngology,
100 First Avenue Building, Rochester, Minnesota

NEW BUSINESS

In his original call for a meeting of eye, ear, nose and throat specialists in Kansas City on April 9-10, 1896, Dr. Hal Foster pointed out the desirability of nationwide annual conventions devoted to the discussion of the art and science of medicine as it applies to the field of specialization. The resulting organization has grown in numbers, usefulness and respect by its adherence to that dictum. The Academy has been the forward leader in graduate medical education through its devotion to the promulgation of higher standards of training and practice without imposing restrictions or promoting legislation. Without exception the Academy has paddled its own canoe through muddy waters, has steered a clear course through backwash and eddies of expediency, and has successfully resisted the gales that would deflect it into the channels of special privilege and wreck it on shoals of personal greed.

The operation of the Academy is entrusted to the Council by Article VI of the Constitution, and the duties and obligations of the Council are specifically stated in Section 2 of that Article. Every Council has always respected the ideas of the founders and has kept the function of the Academy in the professional field.

The Council will meet on Saturday, October 13, 1956, at the Palmer House in Chicago for the purpose of receiving and considering reports of officers, Council Committees and special committees appointed by the Council. It is the wish of the Council to entertain at that time new proposals and suggestions from members that are made for the betterment of the program of education and instruction as it has been conducted through officially established channels and to conduct hearings on all matters that pertain to the conduct of the Academy business.

The work of the Council can be expedited by having communications in writing, with time for hearings before the meeting.

CLINICS IN MEXICO

Bookings for the Clinics in Mexico City following the Annual Meeting have consistently continued well ahead of those for corresponding dates last year. Are you planning to attend them? They are an integral part of the Sixty-First Annual Meeting in Chicago.

LAST CALL. There is still opportunity to register, as we increased all our options this year over those for last year. BUT HURRY.

Leon V. Arnold, 33 Washington Square West, New York 11, N. Y., will gladly answer your questions even though you may have a special problem. Send your deposit to him, also, to hold your reservations. BUT HURRY. This is the "last call."

The tour on Friday to the Pan American Doctors Club, the Hacienda of San Miguel Regla, takes us through a highly cultivated country. The wide valleys are dotted with haciendas; later the plains break into hills covered with aloe, nopal and candelabra cacti.

About fifty-eight miles from Mexico City, we pass through Pachuca, the capital of the State of Hidalgo and one of the oldest and largest silver mining centers in the Republic. The mines have been worked since the days of the Aztecs. The Sierra Madre Mountains surround Pachuca on three sides, and on leaving the city we soon plunge into magnificent scenery for the eleven mile ride to the Club.

The massive masonry of San Miguel is a question mark that arouses the curiosity. Essentially, it is a monument to a Spaniard, Don Pedro Romero de Terreros, one of the brightest stars in the mining history of Mexico. His activity is a brilliant segment in the age-old effort to extract riches from the Mexican earth.

The Spanish Crown created Don Pedro the first Conde (Count) de Regla in 1769. Before the Conde de Regla's death, he had amassed a fortune and had become one of the world's richest men. He died November 27, 1781, in his seventy-second year, at his beautiful country place of San Miguel Regla. With his death the State lost the constant and liberal help that he lent it with his riches; the needy lost their treasure; the King his most loyal and generous subject; and the Church its strongest support.

The Hacienda of San Miguel was protected by a wall fifteen meters high and a meter thick, with suitable guard towers manned by a private militia to protect the Hacienda and its fabulous product from marauders. This wall enclosed an area of about fifteen acres. Both within and outside the walls the grounds were beautifully parked and landscaped.

Bountiful and constant springs of pure water from the valley near San Miguel were found and were controlled by an elaborate system of well engineered channels and aqueducts so arranged that the water was used repeatedly and was available in lavish profusion where needed.

Near the main water source a walled swimming pool was erected for the Countess and her ladies. A fine lake was formed by damming the valley, and on the edge of the lake, drives, walks, fountains, benches and a Greek theater were constructed. The second Count Regla obviously lived in royal style, too, on a fine country estate.

The Huasca Valley continued as a prosperous, irrigated agricultural region until the revolutions, commencing in 1914, caused the abandonment and ruin of the irrigation system. Eventually San Miguel was refurbished and modernized as a guest ranch. In 1947, it was established as the Pan American Doctors Club. With the arrival of good roads, the Huasca Valley has become an attractive center for country homes. The district is rich in history, blessed with scenic beauty and abundant spring water, and appears to have a promising future as well as an interesting past.

At 7:30 in the evening, our Farewell Dinner in Mexico City is held at the popular 1-2-3 Club. The next morning, we shall be on our way to our respective homes. The curtain will have rung down on the second visit of the American Academy of Ophthalmology and Otolaryngology to Mexico City for Clinics.

TONOMETER TESTING STATIONS

Chicago Station Moves to Cleveland

The Tonometer Testing Station located at 904 West Adams Street, Chicago 7, Illinois, has been closed. Its activities have been transferred to a new testing station located at

The Eugene Halle Glaucoma Service
Western Reserve University
2065 Adelbert Road
Cleveland 6, Ohio

The new testing station will be under the direction of Dr. Elmer J. Ballintine.

As in the past, the testing stations will concern themselves only with the checking and standardization of used, Schiøtz or Gradle tonometers. The certification of new instruments remains the function of the Electrical Testing Laboratories, Inc., 2 East End Avenue, New York 21, New York.

In Memoriam

Charles J. Adams.....Kokomo, Indiana
April 7, 1956

Louis J. Beyer.....Buffalo, New York
April 8, 1956

Arthur Varney Garlock.....Bemidji, Minnesota
June 29, 1956

John Randolph Gillum.....Terre Haute, Indiana
March 30, 1956

John Elwin Gleason.....Detroit, Michigan
March 19, 1956

Olin Mansell Goodwin.....Fairmont, West Virginia
February 28, 1956

Charles Morgan Harris, Jr.....Jersey City, New Jersey
March 9, 1956

Bert G. Levin.....St. Paul, Minnesota
February 8, 1956

Frank E. Mallon.....Brooklyn, New York
June 24, 1956

THE INTERNATIONAL ASSOCIATION OF SECRETARIES OF OPHTHALMOLOGICAL AND OTOLARYNGOLOGICAL SOCIETIES

All-India Ophthalmological Society

Encouraged by The International Association of Secretaries of Ophthalmological and Otolaryngological Societies, we have been inviting ophthalmic surgeons from all over the Continent and the United States of America and Canada. It is extremely gratifying that some of the individuals to whom invitations were sent have accepted the invitation gratefully. Their lectures and demonstrations were received most enthusiastically. Some of my colleagues are reluctant to admit that such a feature increases the interest in our annual Society meeting. I personally am of the opinion not only that this feature enlarges our interest in our annual meetings but that a transfusion of knowledge of this kind from across the oceans has vitalized our society, and every year our membership increases remarkably. The number has doubled in the course of the last two years.

In 1955 we had with us Dr. Harvey E. Thorpe, biomicroscopist of Pittsburgh; Dr. S. Lawrence Samuels, ophthalmic pathologist from New Jersey; Professor Karl Lindner of Vienna; Dr. Eliott B. Hague of New York; and Dr. Arthur J. Bedell of Albany, New York, all of whom gave very valuable talks and took part in our discussions.

In 1956 we had Dr. Ramon Castroviejo, corneal surgeon of New York, and Mr. Keith-Lyle from London. The color films of the former and the mastery of the subject of squint of the latter are well known.

Next year our major attraction will be an instructional conference on trachoma. We have invited some of the world-renowned trachomatologists to take part in a panel discussion, a kind of "brain-trust" feature. The response has been encouraging. This will be a welcome departure from the usual practice of "symposiums," and we shall let you know of the success of this feature in next year's report.

Incidentally, we confer honorary membership in our Society to all of those who come from abroad to enrich the proceedings of our meetings.

Our second useful activity is the Journal of our Society, which is now running into its third volume. I am the editor, but I am worried because of lack of good original articles. Occasionally we get a good one, but most of the time the articles have to be rewritten by us or sent back again and again to the authors for correction of mistakes, unsatisfactory statistics and sometimes gross discrepancies. As a result I am fully a year behind my publication months, but we hope to remedy that within two years. In spite of our efforts, we find it difficult to get subscriptions from abroad. Dr. Arnold S. Chamove of San Francisco, who is a good friend of Indian ophthalmology and has visited our country twice, has personally tried to encourage circulation in the States, but he finds that most American ophthalmologists say that they subscribe to too many journals anyway. I do not blame them. My only hope lies in the rather unusual way in which we present summaries of current ophthalmic literature. We use a novel and unique method which makes it possible to file material for future reference. What can we do to catch the eye of our colleagues across the sea?

Another activity of our Society is the encouragement of original articles

through the presentation of medals at the time of our conference. We have one which we give every two years and which is called the "Adenwalla Oration Gold Medal." We are now collecting money from our members to enable us to give another such medal so that we can have a medal and an oration every year. Formerly, the orator was secured by invitation; now, for the first time, he will be selected by competition.

Generally speaking, we are very short of trained personnel for the teaching of ophthalmology and for study and research. Of clinical material there is no dearth. Alas, there is so much work and so little staff that the latter can hardly manage to finish the routine work, being fagged out at the end of the day. It has been the policy of our government to build huge new buildings, costing millions, and to call them modern hospitals. Little thought is given to personnel, to manning them with adequately paid, competent teachers; no consideration is given to equipment, and little attention to maintenance.

There exists another handicap for ophthalmologists. Although eye diseases are second in frequency of incidence (the first being malaria), ophthalmology is a stepchild as far as medical subjects go. It is considered a "minor" subject. If the results of the University graduating examinations are poor, the cause is attributed to the burden of the student by the subject of ophthalmology. If there is any upgrading to be done in any hospital, ophthalmology finds less favor than most postgraduate subjects. It becomes difficult to interest the government ministers in the importance of our subject. Recently the University has eliminated the subject of ophthalmology from the medical subjects for the qualifying examination M.B.B., B.S.

Is it possible for you people to help us?

You have already helped us by encouraging some of the earlier visitors to come to our shores, and give us of their best. *Is it possible for you to invite some of us to your country as guests of honor?* I am only suggesting this and not at all pressing this point, as I can understand the difficulties in this connection.

The only other way you can help us is by circulating this notice to various ophthalmic journals of your country to ensure better attendance by foreign ophthalmologists.

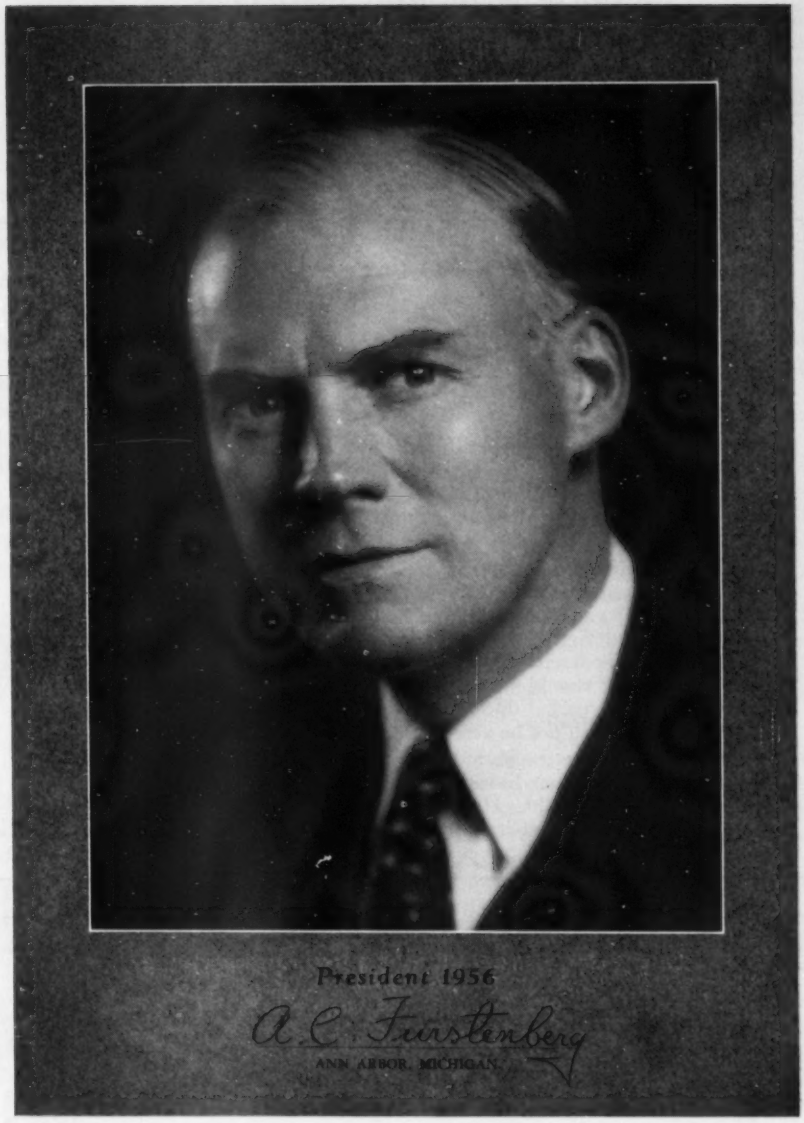
Sorab N. Cooper
D.O. (Bom.) (Oxon.), D.O.M.S. (Lond.)
Laud Mansion
21, *Queen's Road*
Bombay 4, *India*

Notice

The next conference (XVIII) of the All-India Ophthalmological Society will be held at Bangore, February 21-24, 1957. There will be a panel discussion on the subject of trachoma in which some of the world-known trachomatologists have consented to participate.

All practicing ophthalmologists are cordially invited to attend. Any inquiry in this connection may be made to the undersigned.

Dr. Y. K. C. Pandit
Dr. S. P. Gupta
Bombay Mutual Bldg., 2nd Floor
Hornby Road
Bombay 1, *India*



President 1956

A. C. Furstenberg

ANN ARBOR, MICHIGAN

From

SECRETARY'S LETTER NO. 369

GEORGE F. LULL, M.D., *Secretary*
American Medical Association

July 18, 1956

Dear Doctor:

The U. S. Internal Revenue Service has just issued a regulation which is important to physicians.

Efforts over a long period of time by the A.M.A. Law Department to get the Internal Revenue Service to issue a regulation permitting physicians to deduct their expenditures in taking postgraduate "refresher" courses have finally paid off.

The regulation, effective on August 9, provides that expenditures for education are deductible if they are for a "refresher" or similar type of course taken to maintain the skills directly and immediately required by the physician in his employment or business. An educational course to be covered should be designed for established medical practitioners to help them keep abreast of current developments in the profession; it should be of short duration; it should not be taken on a continuing basis, and should not carry academic credit. Education designed to prepare the practitioner to enter a specialty will not be acceptable.

When a physician travels away from home primarily to obtain "refresher" education, his expenditures for travel, meals, and lodging while away from home are deductible. However, expenses for personal activities such as sightseeing, social visiting or entertaining, or other recreation will NOT be allowed.

SIXTY-FIRST ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

OCTOBER 14 TO 19, 1956

PALMER HOUSE

Chicago, Illinois

OFFICIAL NOTICES

Convention Call

Under the authority of the Constitution and with the approval of the Council, I herewith proclaim that the Sixty-First Annual Session of the American Academy of Ophthalmology and Otolaryngology will convene at the Palmer House, Chicago, Illinois, on Monday, October 15, 1956, at 9:30 a.m., and will continue through noon of Friday, October 19, 1956.

A. C. FURSTENBERG, M.D.
President

Attest:
WILLIAM L. BENEDICT, M.D.
Executive Secretary-Treasurer

Business Meeting

The Annual Business Meeting of the Academy will be held in Private Dining Room 18 of the Palmer House on Thursday, October 18, 1956, at 5:30 p.m.

The Order of Business:

1. Call to order
2. Report of Executive Secretary-Treasurer
3. Report of the Senior Member of the Council
4. Election of Fellows
   (See Candidate List, p. 622)
5. Election of Officers
6. Unfinished business
7. New business

All Fellows and candidates for election to Fellowship are urged to attend.

Council Meetings

The Council of the American Academy of Ophthalmology and Otolaryngology will convene at nine o'clock, Saturday morning, October 13, 1956, in Private Dining Room 4 of the Palmer House, Chicago. There will also be a meeting of the Council on Wednesday, October 17, at 12:45 p.m. in Private Dining Room 5. Members desiring to be heard or to present business will confer with the Executive Secretary-Treasurer for appointments.

A. C. FURSTENBERG, M.D.
President

New Business

Proposals for new activities often are presented too late during the Academy session to afford time for deliberation. Therefore, new items requiring Council action should be presented in writing to the Executive Secretary-Treasurer early so that the Committee concerned may have an opportunity to study the matter prior to presentation to the Council.

Public Relations

Contributors to the scientific program are requested to send copies of their papers to the Secretary for Public Relations, Erling W. Hansen, M.D., 90 South Ninth St., Minneapolis 2, Minn., at the earliest possible moment.

Exhibits

The Scientific and Technical Exhibits will open at nine o'clock on Sunday morning, October 14. They will close at four o'clock Sunday afternoon for the President's Reception. From Monday through Friday they will open at 8:30 a.m. The Scientific Exhibit will close at 5:30 p.m. each day, and the Technical Exhibit at 6:00 p.m., except that they will both close on Friday, October 19, at twelve o'clock noon.

Dues

Receipt card for 1956 dues is required for registration at the Academy meeting. Those who have not paid dues for 1956 are requested to remit to W. L. Benedict, M.D., Executive Secretary-Treasurer, 100 First Avenue Bldg., Rochester, Minn. In case of loss, a duplicate receipt card may be obtained upon request.

Registration

General registration will begin at nine o'clock Sunday morning, October 14, in the Foyer to the Grand Ballroom on the fourth floor of the Palmer House.

The regulation badge secured at the time of registration is essential for admittance to all activities. To facilitate registration the following sections will be provided:

Advance Orders: Members who have reserved instruction course tickets register here. Advance orders are held here for collection.

Members Without Advance Orders: Please present Receipt Card for 1956 dues. Dues oustanding may be paid at this section.

(Application blanks for Fellowship in the Academy may be obtained here.)

Instructors: All persons presenting instruction courses register here to secure special badge. Instructors who are not members of the Academy may register without fee.

Nonmembers: A registration fee of $5.00 is required of all guests (see below). The following exceptions are made:

1. Candidates for Academy Fellowship whose names appear in the July-August issue of the TRANSACTIONS.
2. Residents in training presenting guest cards obtained before the meeting (see next page).
3. Guests taking part in the Scientific Program or Exhibits.

Orthoptic Technicians: All orthoptic technicians register here. Tickets for the Orthoptic Technicians Instruction Courses will be on sale here.

Guests

Physicians who are not members are welcome to attend the meeting of the Academy as guests and to participate in all the activities. All guests, however, will be required to register, and a fee of $5.00 will be charged.

In the past, a number of Fellows and registered guests of the Academy have indicated that they wish their *office nurses, technicians,* and *similar personnel* to attend parts of the Academy program or exhibits. Such individuals will be allowed to register upon presentation of a written request from a Fellow or if accompanied by a registered guest or Fellow. The guest fee of $5.00 will be required. An exception is made for all members of the American Association of Orthoptic Technicians, who may register without fee.

Residents

Men in training in accepted residencies, or those now completing a full academic year (nine months) in basic study, may register without fee upon presentation of a guest card obtained by written request of their Department Heads.

Requests from Department Heads for guest cards should be sent to W. L. Benedict, M.D., 100 First Avenue Bldg., Rochester, Minn., by October 1.

Instruction Course Tickets

The tickets for courses in ophthalmology and the tickets for courses in otolaryngology and maxillofacial surgery will be sold at separate desks in the Registration Headquarters. The bulletin boards behind each desk will indicate what tickets are available. Please consult these boards in making your selections. Bear in mind that individual courses are for one hour only; continuous courses run for two or more hours. Price of tickets is $2.00 per hour.

It is necessary to register and to be wearing regulation badge in order to purchase instruction course tickets.

Ladies' Registration

The wives of members and guests are urged to register at the Ladies' Headquarters on the eighth floor of the Palmer House, Room 832. Registration will open at nine o'clock, Sunday morning, October 9, and will close at noon on Thursday, October 13.

Available Supplies

Manuals, monographs, and collected abstracts of instruction courses may be purchased at the supply counter in Registration Headquarters. Guests may place subscriptions to the bimonthly issues of the TRANSACTIONS here.

Dinner Tickets

Dinner tickets will be on sale beginning Sunday morning at nine o'clock, and it is urged that purchases be made early. Tickets for the Annual Banquet, which will be held on Monday evening, may be purchased at Registration Headquarters until two o'clock on Monday afternoon.

Tickets for the Plastic Surgeons' Dinner will be on sale until two o'clock on Tuesday afternoon; and tickets for Alumni Dinners may be purchased until two o'clock on Wednesday.

Constitutional Changes in Fellowship Status

Life Fellows. Fellows who have paid dues continuously for thirty years will automatically become Life Fellows. They shall not be required to pay any fees or dues or assessments and shall enjoy all the privileges of Active Fellows.

Senior Fellows. Fellows who have paid dues continuously for twenty-five years will be termed Senior Fellows and their dues will be one-half of the dues of Junior Fellows.

ARTICLE V, SECTION 6, BY-LAWS

Life Fellows — 1957

Abrahamson, Ira A. ..... Cincinnati, Ohio
Beck, August L. ..... New Rochelle, N.Y.
Black, Paul ..... Lincoln, Neb.
Bouvy, Leo B. ..... LaGrande, Ore.
Brown, Charles W. ..... San Diego, Calif.
Bushman, Louis B. ..... Omaha, Neb.
Campbell, Malcolm D. ..... Royal Oak, Mich.
Clifford, Thomas P. ..... Detroit, Mich.
Cohen, Herman B. ..... Philadelphia, Pa.
Dailey, Gilbert L. ..... Harrisburg, Pa.
Davis, Frederick Allison ..... Madison, Wis.
Doherty, William B. ..... Mount McGregor, N. Y.
Figi, Frederick A. ..... Rochester, Minn.
Fink, Walter H. ..... Minneapolis, Minn.
Flynn, Charles T. ..... New Haven, Conn.
Folsom, William H. ..... Fond du Lac, Wis.
Fraser, Wilbert G. ..... Ottawa, Ont., Canada
Freimuth, Louis E. ..... St. Louis, Mo.
Galloway, Thomas C. ..... Evanston, Ill.
Hebert, Arthur W. ..... Lodi, Calif.
Higbee, David R. ..... San Diego, Calif.
Hoffman, John N. ..... Canton, Ohio

Jones, U. G. .....Johnson City, Tenn.
Jones, William S. .....Menominee, Mich.
Keating, Thomas F. .....Detroit, Mich.
Lebensohn, James E. .....Chicago, Ill.
LeJeune, Frances E. .....New Orleans, La.
Leyda, James H. .....Denver, Colo.
Lundon, Arthur E. ....Montreal, Que., Canada
Lyle, Donald J. .....Cincinnati, Ohio
O'Rourke, Donald H. .....Denver, Colo.
Poos, Edgar E. .....Detroit, Mich.
Potter, William W. .....Knoxville, Tenn.
Ramsey, G. Stuart ..Montreal, Que., Canada
Schall, LeRoy A. .....Boston, Mass.
Schuster, Frank Phillip ....El Paso, Texas
Skirball, Joseph J. .....Boston, Mass.
Smith, Carlie Souter .....Springfield, Mo.
Stark, William Berkely, Toronto, Ont., Canada
Summers, William S. .....Lake Worth, Fla.
Veasey, Clarence A., Jr. ....Spokane, Wash.
Wagner, William A. .....New Orleans, La.
Weinstein, Morris A. .....Philadelphia, Pa.
Wencke, Carl G. .....Battle Creek, Mich.
Williams, M. M. .....Scranton, Pa.
Winger, Ira B. .....Toledo, Ohio
Woodworth, William P. .....Detroit, Mich.

Senior Fellows —1957

Athens, Alvin G. .....Duluth, Minn.
Atwood, Edward A. .....Paterson, N. J.
Bergmann, Milton Blaine ..West Islip, N. Y.
Bloom, C. Hugh .....Easton, Pa.
Boyes, Truman Leo .....New York, N. Y.
Breuning, Paul Harold ....New York, N. Y.
Brewster, Hyder Ford ....New Orleans, La.
Brobeck, Von Haller, Colorado Springs, Colo.
Buckman, Lewis Taylor ..Wilkes Barre, Pa.
Bullard, Carleton William ....Auburn, N. Y.
Cady, Frederick J. .....Saginaw, Mich.
Casten, Virgil Glenn .....Boston, Mass.
Chainski, Edward L. .....Chicago, Ill.
Cline, Samuel.....Boston, Mass.
Coombs, Arthur Jethro .....Chicago, Ill.
Culler, Arthur Merl .....Columbus, Ohio
Darrough, Lawrence Earl .....Dallas, Texas
Dewar, Murray McColl, Grand Rapids, Mich.
Dowling, Harvey E., Calgary, Alta., Canada
Evans, Maurice G. .....Boston, Mass.
Fine, Abraham .....Brooklyn, N. Y.
Garrett, John Dempsey ....Indianapolis, Ind.
Hirst, Otto C. .....Philadelphia, Pa.
Hoffman, William Asa .....Chicago, Ill.
Holloway, Joseph Minor, Fredricksburg, Va.
Huber, Walter A. .....Tulsa, Okla.
Johnson, Henrietta May ....Pasadena, Calif.
Johnston, Kenneth B., Montreal, Que., Canada
Kammerling, Theodore Simon.....
.....Melrose Park, Ill.
Kend, Lee .....Flushing, L. I., N. Y.
Knight, John Swann .....Kansas City, Mo.
Koller, Louis R. .....Minneapolis, Minn.
Krimsky, Emanuel .....Brooklyn, N. Y.
Laird, Robert Glover ....Grand Rapids, Mich.
Lang, George H. .....Savannah, Ga.
Lupo, Carl Wilton .....Brooklyn, N. Y.
Marcotte, Raymond Henry ....Nashua, N. H.
McAlester, Andrew W., III, Kansas City, Mo.
McAskill, James Ernest ..Watertown, N. Y.
McAuliffe, Gervias Ward ..New York, N. Y.
McCollough, Thomas Boyle, Pittsburgh, Pa.
McDougall, J. Calhoun .....Atlanta, Ga.
Mendel, James Harold .....Miami, Fla.
Miller, Joseph Austin ..South Orange, N. J.
Moll, Arthur Mackenzie, Grand Rapids, Mich.
Mumma, Claude S. .....Los Angeles, Calif.
Nippe, Leonard .....Toledo, Ohio
Ohly, John H. .....Brooklyn, N.Y.
O'Rourke, Carroll .....Fort Wayne, Ind.
Otrich, Grover Cleveland .....Belleville, Ill.
Payne, Brittain Ford .....New York, N.Y.
Perry, Claude Severence ....Columbus, Ohio
Ray, Victor, Jr. .....Cincinnati, Ohio
Regan, James J. .....Boston, Mass.
Sanders, Sam Houston .....Memphis, Tenn.
Sayad, William Y. ....West Palm Beach, Fla.
Scheer, Henry Morris .....New York, N.Y.
Shope, Edward Pierce L. ....Camden, N. J.
Simon, Emanuel .....Albany, N. Y.
Sitchevska, Olga L. .....New York, N. Y.
Straatsma, Clarence R. ....New York, N. Y.
Sullivan, Robert E. .....Nashville, Tenn.
Swann, Cecil Collins .....Asheville, N. C.
Townes, C. Dwight .....Louisville, Ky.
Towson, Charles E. .....Philadelphia, Pa.
Tremble, George E. ..Montreal, Que., Canada
Vandevere, William Ewing, El Paso, Texas
Weaver, Homer Virgil .....Canton, Ohio
Weiss, Jack Allan .....Chicago, Ill.
Westervelt, Herbert O., Benton Harbor, Mich.
Wilkerson, William W., Jr., Nashville, Tenn.
Woodruff, George H. .....Joliet, Ill.

CONVENTION ACTIVITIES

PRESIDENT'S RECEPTION

Grand Ballroom

Sunday, 4:30 p.m.

President A. C. Furstenberg and Mrs. Furstenberg invite all members and guests of the Academy to a reception on Sunday, October 14, at 4:30 p.m. in the Grand Ballroom.

XII WHERRY MEMORIAL LECTURE

Sponsored by the Wherry Memorial Fund

The XII Wherry Memorial Lecture will be delivered at the scientific session of the Section on Otolaryngology, Wednesday afternoon, October 17, by Dr. Arthur W. Proetz, Professor Emeritus of Clinical Otolaryngology at Washington University School of Medicine, St. Louis. The subject of his address will be "Res Medica, 1956."

XIII JACKSON MEMORIAL LECTURE

Sponsored by the Ophthalmic Publishing Co.

Dr. Ludwig J. K. von Sallmann, Associate Professor of Ophthalmology at the College of Physicians and Surgeons of Columbia University, New York, will deliver the XIII Jackson Memorial Lecture at the scientific session of the Section on Ophthalmology, Tuesday morning, October 16. The subject of his lecture will be "The Lens Epithelium in the Pathogenesis of Cataract."

THE ANNUAL BANQUET

Grand Ballroom

Monday, 7:00 p.m.

Is the Academy meeting getting too big for an Annual Dinner? It's all in the way you look at it. The style of official banquets is changing with trends of social customs at public affairs. Once a public forum where leaders proclaimed the principles of public responsibility for inaugurating and sustaining mass support for movements in the field of operation of the convention, the occasion nowadays is one of relaxation, conversation, entertainment, and dancing. Well — the Program Committee thinks we should be up-to-date, so the Annual Dinner will take place Monday evening in the Grand Ballroom. No speeches, but plenty of music, three grand acts, and dancing.

Ten persons will be seated at each table, and all tables are reserved. So make up your own table. Tickets will be available in the registration foyer until 2:00 p.m., Monday, October 15. Doors open at 6:30 p.m. Cocktails available; piano music through dinner. Dress optional.

RECONSTRUCTIVE SURGERY DINNER

Tuesday, 6:30 p.m.

A dinner for all surgeons interested in plastic and reconstructive surgery of eye, ear, nose and throat will be held in the Glass Hat of the Congress Hotel on Tuesday, October 11, at 6:30 p.m. Reservations may be made in advance until October 1 through Dr. W. L. Benedict, Executive Secretary-Treasurer of the Academy, 100 First Avenue Building, Rochester, Minnesota. Price of ticket, $7.50.

FACULTY LUNCHEON

Private Dining Room 14

Thursday, 12:30 p.m.

President A. C. Furstenberg will be host to all those presenting scientific papers, motion pictures, scientific exhibits and courses of instruction.

LADIES' PROGRAM

Wives and guests of members of the Academy are invited to participate in the special program of events planned for their pleasure and convenience by the Academy.

Beverages and cakes will be served daily from 9:00 to 11:30 a.m. and from 3:00 to 5:00 p.m. in the Ladies' Hospitality Suite, Rooms 832-834.

Information personnel will be in attendance in the Hospitality Suite to give suggestions and advice regarding restaurants, shopping, theaters, concerts, and places of interest in the city.

LUNCHEON AND FASHION SHOW

The Women's Faculty Club of Northwestern University Medical School cordially invites the feminine contingent attending the October meeting of the American Academy of Ophthalmology and Otolaryngology to join its members and their friends in attending the Annual Benefit Luncheon and Fashion Show, by Bramson's, on October 16, 1956, at the Terrace Casino in the Morrison Hotel. Tickets are $6.00 each.

This year the Women's Faculty Club celebrates its twenty-fifth year of service to the Medical School and the University Clinics. They expect to have an especially fine Anniversary Party and hope that you and your friends will join them.

Make your reservations NOW! Reservations are limited, and ticket orders will be filled as received. Send reservation, with check payable to Women's Faculty Club, to Mrs. John A. Mart, Ticket Chairman, 4211 North Paulina Street, Chicago 13.

ALUMNI DINNERS

The following alumni groups will hold dinners or cocktail parties on Wednesday evening, October 17, 1956. (A complete listing including time, place of function and address of the secretary for each group will appear in the Pocket Program issued at the Academy meeting.)

Boston City Hospital Aural & Ophthalmic Society

Brooklyn Eye and Ear Alumni Association

Dr. J. Mackenzie Brown Alumni

Episcopal Eye, Ear and Throat Hospital Residents Alumni

Henry Ford Hospital Alumni

Gill Memorial Eye, Ear and Throat Hospital Alumni—Annual Spring Graduate Course

Harper Hospital Alumni

Illinois Eye and Ear Infirmary Alumni (Ophthalmology)

Iowa Eye, Ear, Nose and Throat Alumni

Johns Hopkins Hospital Alumni—Wilmer Institute and Otolaryngology

David H. Jones Alumni

Dr. John R. Lindsay Alumni

Manhattan Eye, Ear and Throat Hospital—Society of Ex-House Surgeons

William A. Mann Ophthalmology Group, Hines Veterans Administration

Massachusetts Eye and Ear Infirmary and Harvard Medical School Alumni—Otolaryngology and Ophthalmology (Joint Meeting)

Mayo Clinic Alumni

New Orleans E.E.N.T. Hospital-Charity Hospital Alumni

New York Eye and Ear Infirmary Alumni

New York University, New York Post Graduate Medical School and Bellevue Hospital Alumni

Northwestern University Postgraduates, Residents and Staff

Otolaryngologic Alumni Association of the University of Illinois and Illinois Eye and Ear Infirmary

Otolaryngology Alumni of The Mount Sinai Hospital, New York

Walter R. Parker-Roy Bishop Canfield Alumni

Presbyterian Hospital (New York) Ear, Nose and Throat Alumni Group

University of Cincinnati Alumni—Otolaryngology

University of Pennsylvania Post-Graduate and Wills Hospital Alumni—Ophthalmology
University of Pennsylvania Alumni—Otolaryngology
Washington University Alumni—Otolaryngology

CLINICS IN MEXICO

Postconvention Tour

The interest shown in the Academy extension program, Clinics in Mexico City, by reservations to date indicates a larger number of Academy members, their families and friends will visit our southern neighboring country than last year. Our colleagues in Mexico City have again expressed their welcome to visit the eye, ear, nose, and throat departments of the medical schools and hospitals and to demonstrate their facilities and methods of teaching undergraduate and graduate medical students in the arts of specialty practice. The principal theme of the Academy program this year is the future of ophthalmologists and otolaryngologists in the field of medicine. The question is universal. In Mexico they have an answer.

The tour to Mexico, arranged for the Academy and accompanied by Mr. Leon V. Arnold, will include visits to interesting cities in Mexico and may be joined by friends of Academy members. It is not limited to doctors. However, reservations should be made soon, as the space on planes is limited. Only regularly scheduled flights on commercial airlines will be used. No chartered flights. Write to Mr. Leon V. Arnold, Travel Consultant, Holley Chambers, 33 Washington Square West, New York 11, N. Y., for reservations.

CHANGE OF ADDRESS

PLEASE NOTIFY the office of the Secretary of the Academy of change of address. TRANSACTIONS mailing envelopes are addressed three weeks before mailing date. Your copy will reach you if we have your correct address. Please keep us up to date on your CITY, ZONE AND ROOM NUMBER OF YOUR OFFICE BUILDING. TRANSACTIONS and DIRECTORIES are returned to the publisher each month because we have not been informed of changes of address.

The DIRECTORY is compiled once a year, in March. Check your name and address now to see if it is correct. If not, please notify the editor at once. Send us word immediately of any future change.

CANDIDATES -- 1956

The following candidates have qualified for Fellowship in the American Academy of Ophthalmology and Otolaryngology and will be voted upon at the Annual Business Meeting, Thursday, October 18, 1956. Objections to the election of a candidate must be filed with the Executive Secretary-Treasurer previous to Saturday, October 13, 1956.

CANDIDATES CERTIFICATED BY BOARDS

Ophthalmology (OP)
Otolaryngology (ALR)

Abrahamson, Ira A., Jr., 925 Fifth-Third Bank Bldg., Cincinnati 2, Ohio, OP

Albert, Dan George, 1605 22nd St. N.W., Washington 8, D. C., OP

Allen, Robert L., 122 S. Michigan Ave., Chicago 3, Ill., OP

Andrew, William Frederick, 205 W. Second St., Duluth 2, Minn., ALR

Andrews, Cyprian Herbert, 302 Medical Bldg., Prince Albert, Sask., Canada, OALR

Annesley, William Honeyford, Jr., 6910 Market St., Upper Darby, Pa., OP

Armstrong, William Riddick, 6407th USAF Hospital, APO 323, San Francisco, Calif., OP

Arsuaga, Lorenzo, Ponce de Leon 1058, Santurce, Puerto Rico, ALR

Ashodian, Mila J., Lankenau Medical Bldg., Philadelphia 31, Pa., OP

Audet, Jacques, 123 Grande-Allee, Quebec 4, Que., Canada, OP

Ballou, Robert A., U. S. Naval Hospital, Portsmouth, Va., OP

Barnes, Leroy John, 359 E. Manchester Blvd., Inglewood 1, Calif., ALR

Bautista, Ariston G., 450 Clarkson Ave., Brooklyn 3, N. Y., ALR

Beale, John Paul, Jr., 450 Sutter St., San Francisco 8, Calif., OP

Beatrous, Frank Theo., 1218 Richards Bldg., New Orleans 12, La., ALR

Beck, Wilford William, Jr., 60 S. Fourth East St., Salt Lake City 2, Utah, ALR

Bendor-Samuel, John Edward L., Winnipeg Clinic, Winnipeg 1, Man., Canada, OP

Beuerman, Virgil Adolph, U. S. Naval Hospital, San Diego, Calif., OP

Biegel, Albert Cisler, 4085 Brockton, Riverside, Calif., OP

Biondo, Thomas, Veterans Administration Center, Dayton 7, Ohio, ALR

Blanchard, Cyrus Lloyd, 1136 W. Sixth St., Los Angeles 17, Calif., ALR

Bontley, Jack Robert, 21 E. State St., Columbus 15, Ohio, OP

Bowen, Jesse William, Jr., 907 Medical Arts Bldg., Tacoma 2, Wash., OP

Boyd, Benjamin F., Box 1189, Panama, R. P., OP

Brown, Aubrey Kenna, Walter Reed Army Hospital, Washington 12, D. C., ALR

Brown, Harry F., 1060 E. Green St., Pasadena 1, Calif., OP

Brunelle, Paul, 1260 E. St. Joseph Blvd., Montreal 14, Que., Canada, ALR

Bryant, Frederick William, Great Falls Clinic, Great Falls, Mont., OP

Buka, Theodore Edward, 199 Wm. Howard Taft Rd., Cincinnati 19, Ohio, OP

Bullen, Halsey Graves, 21 Broad St., Stamford, Conn., ALR

Burkey, Jordan Warren, 609 Cherry St., Springfield, Mo., ALR

Burns, Stanley Sherman, Jr., 106 W. Seventh St., Charlotte 2, N. C., ALR

Calkins, James Phillip, 45 N. Tucson Blvd., Tucson, Ariz., OP

Campana, Joseph Francis, 3 W. Third St., Williamsport, Pa., ALR

Chamberlain, Calvin Bernard, 174 Nemaha, Pomona, Calif., OP

Chandler, James Ryan, Jr., Ear, Nose & Throat Clinic, Station Hospital, Fort Bragg, N. C., ALR

Charbonneau, J. A. Rene, 958 Sherbrooke East, Montreal, Que., Canada, OP

Combs, Cooley L., P. O. Box 270, Hazard, Ky., ALR

Cope, Beverly Alden, 295 E. Main St., Ashland, Ore., ALR

Culver, Warren T., School of Aviation Medicine, USAF, Randolph Air Force Base, Texas, OP

Curtis, James LeRoy, 3810th USAF Hospital, Maxwell Air Force Base, Montgomery, Ala., OP

Davis, Charles Truman, Scott and White Clinic, Temple, Texas, OP

Davis, Merle Jasper, 221 S. Sixth St., Terre Haute, Ind., OP

Dean, John Lake, 407 E. Lamar, Crockett, Texas, ALR
Deutsch, William E., 30 N. Michigan Ave., Chicago 2, Ill., OP
Devine, Kenneth Daniel, Mayo Clinic, Rochester, Minn., ALR
De Vol, Russell A., 300 S. Dewey, North Platte, Neb., OP
Dixon, John B., 3244 E. Douglas, Wichita, Kan., OP
Douglas, John Evans, 1403 San Antonio St., Austin 1, Texas, ALR
Draper, William Leonard, 509 Hermann Professional Bldg., Houston 25, Texas, ALR
Drucker, Arnold P., 406 N. San Mateo Dr., San Mateo, Calif., OP
Dutsch, Frederic H., 927 Park Ave., New York 28, N. Y., OP

Eberly, Byron Thomas, 405 Professional Bldg., Portsmouth, Va., ALR
Ellis, George Saba, 812 Maison Blanche Bldg., New Orleans 16, La., OP
England, Myron C., 1011 Main, Woodward, Okla., ALR
Everett, William Geary, 401 Jenkins Bldg, Pittsburgh 22, Pa., OP

Fisher, Albert, Bank Street Clinic, Decatur, Ala., OP
Fleming, Robert James, 114 N. Main St., St. Charles, Mo., OP
Fletcher, Russell, 1010 B St., San Rafael, Calif., ALR
Flocks, Milton, 850 Middlefield Rd., Palo Alto, Calif., OP
Folk, Eugene Roy, 4500 W. Oakton St., Skokie, Ill., OP
Fraser, Wilmur Faulkner, 183 Metcalfe St., Ottawa 4, Ont., Canada, OP
Frey, Harry Bradford, 4298 Orange St., Riverside, Calif., ALR

Gafford, August Vincent, 104 E. Third Ave., Rome, Ga., ALR
Gallaher, John Albert, 1806 Bonanza St., Walnut Creek, Calif., OP
Gann, Eldred LaMonte, Gazette Bldg., Emporia, Kan., ALR
Gardner, Carl Arthur, 1410 American Nat'l Bank Bldg., Kalamazoo, Mich., ALR
Giotta, Peter John, U. S. Naval Hospital 926, FPO, San Francisco, Calif., OALR
Glaeser, John H., 304 Doctor's Bldg., Minneapolis 2, Minn., ALR
Goldcamp, Richard Renner, Dollar Bank Bldg., Youngstown, Ohio, ALR
Goldman, Irving S., 5913 Callowhill St., Pittsburgh 6, Pa., OP
Goldsmith, Maximilian O., 1320 Cornaga Ave., Far Rockaway 91, N. Y., OP
Goodman, Merrill, 2035 Lakeview Rd., New Hyde Park, L. I., N. Y., ALR
Goodwin, Rufus C., 2000 Van Ness Ave., San Francisco 9, Calif., OP
Goorchenko, Victor A., 205 Avenue 1, Redondo Beach, Calif., OP
Grassi, Anthony John, 1769 W. Seventh St., Brooklyn 23, N. Y., OP
Green, Earl Webster, Green Clinic, Hall Ave., Hattiesburg, Miss., OP
Green Oscar, 3120 N. Meridian St., Indianapolis 8, Ind., ALR
Greenway, Robert Edward, 360 Queens Ave., London, Ont., Canada, ALR
Grove, Raymond F., 905 Murchison Bldg., Wilmington, N. C., OP
Guckien, Joseph L., 609 Hulman Bldg., Evansville, Ind., ALR
Gwathmey, George Tayloe, 417 E. Robinson Ave., Orlando, Fla., OP

Harrison, Wiley Haxton, 55 E. Washington St., Chicago 2, Ill., ALR
Hartridge, Theodore Livingston, Brooke Army Hospital, Fort Sam Houston, Texas, ALR
Hayter, Dale W., 234 W. Beauregard, San Angelo, Texas, OP
Helfrich, Mart L., Jr., Second Nat'l Bank Bldg., Bucyrus, Ohio, OP
Hendrix, William C., Jr., 1216 Pennsylvania Ave., Fort Worth 4, Texas, ALR
Henry, Lewis Murphey, 602 Garrison Ave., Fort Smith, Ark., OP
Hicks, James Johnston, 605 Medical Arts Bldg., Birmingham 5, Ala., ALR
Hodgson, Thomas Harold, 174 St. George St., Toronto, Ont., Canada, OP
Hogan, Thomas F., Jr., 414 Navarro St., San Antonio 5, Texas
Horsley, George Ernest, Madison Sanitarium & Hospital, Madison College, Tenn., ALR
Horwitz, Irving David, 628 S. San Vicente Blvd., Los Angeles 48, Calif., OP
Hough, Mac Johnson, 821 Doctors Bldg., Charlotte, N. C., OP

Jeans, Park C., Jr., Box 963, Greenwood, S. C., OP
Johnson, David Stanton, 208 David Whitney Bldg., Detroit 26, Mich., OP
Johnson, Edgar Norman, 601 Delaware Ave., Wilmington, Del., ALR
Jordan, Joseph Mitchell, U. S. Naval Hospital, Corona, Calif., OP

Katz, Arnold Hirsch, 4571 Sherbrooke St. West, Montreal, Que., Canada, OP

Kelly, Stephen John, 1025 S. 17th St., Birmingham 5, Ala., OP

Kimball, Paul, 2465 S. Downing St., Denver 10, Colo., OP

Kirkeeng, Melvin Johnson, 1700 E. Charleston, Las Vegas, Nev., OP

Knight, Frederick Edward, 2730 Fresno St., Fresno, Calif., ALR

Krohn, David L., 30 E. 40th St., New York 16, N. Y., OP

Kusske, Bradley W., 444 Lowrey Medical Arts Bldg., St. Paul 2, Minn., ALR

Kusske, Douglas R., 350 St. Peter St., St. Paul 2, Minn., ALR

Kyler, Stephen L., Veterans Administration Hospital, Pittsburgh 40, Pa., ALR

Lachman, Bernard E., 1117 Hamilton St., Allentown, Pa., OP

Lake, J. Douglas, 66 E. 79th St., New York 21, N. Y., ALR

Langgaard, Charles Erich, 129 Summit Ave., Summit, N. J., ALR

Lawwill, Stewart, Jr., 1008 Medical Arts Bldg., Chattanooga, Tenn., OP

Leavenworth, Richard Ormond, Jr., 4959 Excelsior Blvd., St. Louis Park, Minn., OP

Lee, Henry Yen, 1401 S. Hope St., Los Angeles 15, Calif., OP

Lee, Samuel, 1431 S. Broadway, Santa Ana, Calif., ALR

Lerner, George G., 717 E. Genesee St., Syracuse 2, N. Y., ALR

Lewis, Robert C., 2901 Capitol Ave., Sacramento, Calif., ALR

Little, Henry Owen, 455 Warren St., Hudson, N. Y., OP

Liva., Edward Louis, 4450th USAF Hospital, Langley Field, Hampton, Va., OP

Lorenzen, Robert F., 550 W. Thomas Rd., Phoenix, Ariz., OP

Luce, Cyril Martin, 255 S. 17th St., Philadelphia 3, Pa., OP

Ludmerer, Sol, 3736 Atlantic Ave., Long Beach 7, Calif., OP

Macmillan, Bruce B., 3700 Fifth Ave., Pittsburgh 13, Pa., ALR

Macpherson, Gordon Barwick, 221 King St. East, Kingston, Ont., Canada, OALR

Maher, Robert Campbell, S. 427 Bernard St., Spokane 4, Wash., OP

Mahood, Alan Winston, 176 St. George St., Toronto 5, Ont., Canada, OP

Malis, Sol, 335 S. Kalmia St., Escondido, Calif., ALR

Mailloux, Luc, 525 Cherrier St., Montreal, Que., Canada, OP

Mangubat, Liborio L., R-218 Kapitan Pepe Bldg., Manila, Philippines, OP

Mansheim, Bernard Joseph, 212 S. 11th St., LaCrosse, Wis., OP

Mansur, Harl D., Jr., 1400 Eighth St., Wichita Falls, Texas, OP

Maylath, Florian R., 221 W. Broad St., Bethlehem, Pa., OP

McCann, Thomas P., Jr., 375 E. Main St., Bayshore, L. I., N. Y., OP

McCoy, Charles Thomas, 312 Wolcott Bldg., Hutchison, Kan., OP

McIntire, Frederic Joseph, Jr., 63 N. Common St., Lynn, Mass., ALR

McKendall, H. Raymond, 454 Angell St., Providence 6, R. I., OP

McLaughlin, Brian Charles, 324 E. Wisconsin Ave., Milwaukee 2, Wis., OP

McNair, Joel N., Madigan Army Hospital, Tacoma, Wash., OP

McNeill, John Alexander, 1052 Lowry Medical Arts Bldg., St. Paul 2, Minn., OP

Meacham, Charles Thomas, 65 South St., Stamford, Conn., OP

Mettler, Donald Charles, University Hospital, Ann Arbor, Mich., ALR

Meyer, Richard Elmer, 1416 Main St., Quincy, Ill., OP

Milburn, Graham Burton, 1104 Nix Professional Bldg., San Antonio 5, Texas, OP

Miller, Lowell Cornelius, 117 N. Claudina, Anaheim, Calif., OP

Minasian, Edmond V., 16th Field Hospital, APO 696, New York, N. Y., OP

Molony, Terence James, Suite 434, Medical Arts Bldg., Toronto, Ont., Canada, ALR

Montgomery, William Wayne, 243 Charles St., Boston 14, Mass., ALR

Montross, Henry Evan, 2814 N. Eastern Ave., Los Angeles 32, Calif., OP

Moran, John Patrick, 209 Medical Dental Bldg., Corpus Christi, Texas, ALR

Morgan, William C., Jr., 1106 Virginia St. East, Charleston 1, W. Va., ALR

Mulcahy, Neil Donald, 2411 Ocean Ave., San Francisco 27, Calif., ALR

Mullen, Raymond Stephen, 3780 12th St., Riverside, Calif., OP

Murto, Robert E., 28 W. State St., Trenton 8, N. J., OP

Myers, Paul B., 223 Medical Dental Bldg., Portland 5, Ore., ALR

Obregon, Gonzalo Gomez, University Hospitals, Iowa City, Iowa, ALR

O'Brian, Dennis Martin, 154 Lexington Ave., Passaic, N. J., ALR

O'Rourke, James Francis, Ophthalmology Branch, NINDB, Nat'l Institutes of Health, Bethesda 14, Md., OP

Owensby, Lindell C., 222½ W. Sixth St., Concordia, Kan., OP

Passmore, Jack Webster, Box 156, Fitzsimons Army Hospital, Denver 8, Colo., OP

Perlman, Arnold R., 1387 Main St., Springfield 3, Mass., OP

Perri, Frank Adrian, Box 485, 3650 USAF Hospital, Geneva, N. Y., ALR

Phillips, Burton Errington, 7600 John R St., Detroit 3, Mich., ALR

Pinschmidt, Norman William, 52 State St., Gallipolis, Ohio, OP

Post, Edmund A., 350 St. Peter St., St. Paul 2, Minn., ALR

Presto, Ernest Carl, 37-55 76th St., Jackson Heights, L. I., N. Y., OP

Purcell, Edward F., 110 E. Main St., Madison 3, Wis., OP

Quint, J. Harley, Jr., 1700 Waterman Ave., San Bernardino, Calif., OP

Ralston, Robert Linton, 753 N. Church St., Spartanburg, S. C., ALR

Raynor, Everett Freeman, 925 W. Georgia St., Vancouver 1. B. C., Canada, OP

Reaves, Robert Grisham, Jr., 117 No. Claudina St., Anaheim, Calif., ALR

Reese, Stanley Elwyn, 8939 La Mesa Blvd., La Mesa, Calif., ALR

Rhoades, Albert Leonard, Geisinger Memorial Hospital, Danville, Pa., OP

Roberts, Nat Craig, 180 W. First St., Reno, Nev., OP

Rongetti, Joseph Richard, 42 Fifth Ave., New York 11, N. Y., ALR

Rothen, Robert Madison, 502 W. 13th St., Austin, Texas, OP

Rounthwaite, Francis John, 386 Queens Ave., London, Ont., Canada, ALR

Rouse, David Mattingly, 117 E. Monroe, Mexico, Mo., OP

Russell, Daniel Abell, Jr., 429 Medical Arts Bldg., San Antonio 5, Texas, OP

Sampson, John Joseph, 213 Burns Bldg., Colorado Springs, Colo., OP

Schlegel, Henry Edward, Jr., 621 High St., Oregon City, Ore., OP

Schwartz, Ariah, 1500 Fifth Ave., San Francisco 22, Calif., OP

Seligson, Alvin, 3345th USAF Hospital, Chanute AFB, Rantoul, Ill., OP

Shapley, Albert, 35-29 86th St., Jackson Heights, L. I., N. Y., OP

Shuster, Allan R., Memorial Medical Center, Dept. of Otolaryngology, Williamson, W. Va., ALR

Sinclair, Stephen G., 7002 Jenkins Arcade Bldg., Pittsburgh 16, Pa., OP

Sinha, Sharda Prasad, Royal Victoria Hospital, Montreal, Que., Canada, ALR

Sinskey, Robert Marshall, 2210 Santa Monica Blvd., Santa Monica, Calif., OP

Smith, Denton Weymouth, 390 Tenth St., Beaumont, Texas, ALR

Smith, Edward John, 1538 Sherbrooke St. West, Montreal, Que., Canada, ALR

Soss, Thomas Leonard, 406 N. San Mateo Dr., San Mateo, Calif., ALR

Speaker, Other Franklin, 586 N. Main St., Pomona, Calif., OP

Stambaugh, Norman Fletcher, 60 Wyoming St., Dayton 9, Ohio, OP

Stearns, Melvin Joseph, 405 Caroline St., Ogdensburg, N. Y., ALR

Stephens, William Carey, 818 Clinic Dr., Tyler, Texas, ALR

Sternes, Frank Charles, 6050 Cermak Rd., Cicero 50, Ill., OP

Stichel, Frederick Louis, Jr., 4580 Edmondson Ave., Baltimore 29, Md., ALR

Sullivan, John Vincent, Fifth and Court St., Carroll, Iowa, OP

Swords, Collins Ward, Jr., 406 Huntington Medical Bldg., Miami 32, Fla., OP

Tamler, Edward, Stanford University Hospital, San Francisco 15, Calif., OP

Tandy, William, 307 N. Locust St., Inglewood, Calif., OP

Tchao, Jou S., 82 Pine St., Lewiston, Maine, OP

Thompson, John Reginald, 327 E. State St., Columbus 15, Ohio, OP

Tour, Robert Louis, 384 Post St., San Francisco 8, Calif., OP

Trapp, Francis William, 55 W. Main St., New Britain, Conn., ALR

Trible, William M., 1150 Connecticut Ave. N.W., Washington 6, D. C., ALR

Troyer, Dana Orion, 1008 N. Main St., Bloomington, Ill., OP

Tyler, John Wayne, 518 Eastman Bldg., Boise, Idaho, OP

Tyner, Harlan H., 3202 N. Meridian St., Indianapolis 8, Ind., OP

Valone, Richard James, 264 Genesee St., Utica 2, N. Y., OP

van Herick, William, 595 Buckingham Way, San Francisco 27, Calif., OP

Walker, Ethan Allen, Jr., 301 N.W. 12th St., Oklahoma City 3, Okla., ALR

Walsh, John Joseph, 2404 W. 63rd St., Chicago 29, Ill., ALR

Walsh, Rita, 1008 N. Main St., Bloomington, Ill., OP

Walter, Claus D., Stadt Krankenanstalten, Krefeld, Germany, ALR

Weaver, Rex Winfield, 122 E. Main St., Mesa, Ariz., OP

Wehr, Maurice Burton, 1712 Rhode Island Ave. N.W., Washington 6, D. C., OP

Weintraub, Alfred, 115 E. 82nd St., New York 28, N. Y., OP

Weiser, Albert, 390 Pine St., Fall River, Mass., ALR

Weiss, Herman, 6360 Wilshire Blvd., Los Angeles 48, Calif., OP

Weisskopf, Alex, 40 San Mateo Dr., San Mateo, Calif., ALR

Wendell, Franklyn R., 212 W. Lodi Ave., Lodi, Calif., OP

Wenzel, Paul Albert, 3191 S. Broadway, Englewood, Colo., OP

White, Donald Edward, Maj. USAF (MC) 7100 USAF Hospital, APO 633, New York, N. Y., OP

Wick, H. Ward, 858 Fourth St., Santa Rosa, Calif., OP

Wiggins, Robert Lawrence, Campbell Bldg., Victoria, B. C., Canada, OP

Williams, John Richard, 140 Lockwood Ave., New Rochelle, N. Y., ALR

Williams, Richard Kennon, 2015 Monument Ave., Richmond, Va., OP

Wilson, Frederick Albert, 131 Fulton Ave., Hempstead, L. I., N. Y., ALR

Wilson, Heston Lawshe, 1118 Ninth Ave., Seattle 4, Wash., ALR

Wong, Andrew Shansik, 236 W. Main St., Meriden, Conn., OP

Wong, George, 38 Sixth St., Chatham, Ont., Canada, ALR

Yast, Charles Joseph, 504 Broadway, Gary, Ind., ALR

Yockey, Robert Harold, 150 N. Jefferson St., Kittanning, Pa., OP

Younger, Lewis Ian, 214 Sixth Ave. West, Calgary, Alta., Canada, ALR

Zanka, Jaroslav A., Veterans Administration Hospital, Butler, Pa., ALR

Zeavin, Bernard Harold, 1262 D. S.U. Army Hospital, Fort Dix, N. J., OP

The following candidates have qualified for Fellowship in the Academy except in some single detail, such as certification or the signatures of sponsors. The deficiencies are expected to be made up before the Annual Business Meeting.

Ahmad, Syed Sayeeduddin, Pakistan Naval Hospital, Karachi 4, Pakistan, OP

Bisi, Ricardo Humberto, 305 W. 52nd St., New York 19, N. Y., ALR

Bruce, Robert Grady, 3502 Lee St., Greenville, Texas, OP

Nalle, Ernest, Jr., 1312 Main St., Lubbock, Texas, ALR

Slater, Jules, 1 Duke St., Hamilton, Ont., Canada, OP

Zakhary, George Shenquoa, 80 Gamhoria St., Cairo, Egypt, ALR

PROGRAM IN BRIEF

1956 Meeting

Palmer House — Chicago

SATURDAY, OCTOBER 13, 1956

9:00 a.m.—Council Meeting — Private Dining Room 4

SUNDAY, OCTOBER 14, 1956

9:00 a.m.—Registration — Foyer to Grand Ballroom

9:00 a.m.—Ladies' Registration—Room 832

9:00 a.m.—Official Opening of Exhibits: Scientific—Private Dining Rooms 15, 16, 17; Club Foyer
Technical—Exhibition Hall and Red Lacquer Room

10:00 a.m.—Teachers' Sections: Ophthalmology and Otolarlyngology Combined Meeting—Grand Ballroom

12:30 p.m.—Home Study Courses Faculty Luncheon—Private Dining Room 9

4:30 p.m.—President's Reception—Grand Ballroom

8:00 p.m.—Special Scientific Program: Otosclerosis Study Group of the Committee on Conservation of Hearing—Grand Ballroom

8:00 p.m.—Special Scientific Program: American Orthoptic Council and American Association of Orthoptic Technicians—Williford Room, Conrad Hilton Hotel

MONDAY, OCTOBER 15, 1956

9:00 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

9:30 a.m.—Joint Scientific Session—Grand Ballroom

10:15 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

11:30 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

3:15 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

4:30 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

7:00 p.m.—Annual Banquet — Grand Ballroom

TUESDAY, OCTOBER 16, 1956

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Seventh Floor

9:00 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

10:15 a.m.—ENT Instruction Courses—Seventh Floor

10:15 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

11:30 a.m.—ENT Instruction Courses—Seventh Floor

11:30 a.m.—Orthoptic Technicians Instruction Courses—Seventh Floor

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

3:15 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

4:30 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

5:30 p.m.—Dinner Meeting of International Association of Secretaries of Ophthalmological and Otolaryngological Societies. Private Dining Room 18

6:30 p.m.—Subscription Dinner, Plastic Surgeons—Glass Hat, Congress Hotel

8:00 p.m.—Special Scientific Program: Committee on Plastic Surgery, Ophthalmology—Gold Room, Congress Hotel

8:00 p.m.—Special Scientific Program: Committee on Plastic Surgery, Otolaryngology—Florentine Room, Congress Hotel

WEDNESDAY, OCTOBER 17, 1956

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Seventh Floor

10:15 a.m.—ENT Instruction Courses—Seventh Floor

11:30 a.m.—ENT Instruction Courses—Seventh Floor

12:45 p.m.—Council Meeting Luncheon—Private Dining Room 5

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

3:15 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

4:30 p.m.—EYE Instruction Courses—Seventh Floor and Crystal Room

6:30 p.m.—Alumni Dinners

THURSDAY, OCTOBER 18, 1956

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—ENT Instruction Courses—Seventh Floor

10:15 a.m.—ENT Instruction Courses—Seventh Floor

11:30 a.m.—ENT Instruction Courses—Seventh Floor

12:45 p.m.—Faculty Luncheon—Private Dining Room 14

2:00 p.m.—Section on Otolaryngology: Scientific Papers and Motion Pictures—Grand Ballroom

2:00 p.m.—EYE Instruction Courses—Seventh Floor

3:15 p.m.—EYE Instruction Courses—Seventh Floor

4:30 p.m.—EYE Instruction Courses—Seventh Floor

5:30 p.m.—Business Meeting—Private Dining Room 18

FRIDAY, OCTOBER 19, 1956

9:00 a.m.—Section on Ophthalmology: Scientific Papers and Motion Pictures—Grand Ballroom

9:00 a.m.—Joint Scientific Session with American Society of Ophthalmologic and Otolaryngologic Allergy—Private Dining Room 14

12:00 m.—Scientific and Technical Exhibits Close

SCIENTIFIC SECTIONS

No official discussers have been chosen for selected presentations in the Sessions on Otolaryngology on this year's program. Open discussions from the floor will be encouraged, with a time limit of three minutes for each participant. The presiding officer will terminate the open discussion if, in his judgment, it becomes too lengthy.

This method is on trial at this year's meeting. It is being done because some of the members have requested it.

Obviously, the time schedule for each presentation is only an approximate time.

THE PROGRAM COMMITTEE

JOINT SESSION

Monday, October 15, 1956

9:30 a.m.

GRAND BALLROOM

Presiding Officer:
A. C. FURSTENBERG, M.D.
President

Secretary:
LAWRENCE R. BOIES, M.D.

Call to Order.....The President
Announcements.....The Secretary
Introduction of the Guest of Honor
Address by the President
Address by the Guest of Honor
Presentation of
Honor Awards.....The President

RECIPIENTS OF HONOR AWARDS

Franz Altmann
New York
Moacyr E. Alvaro
Sao Paulo, Brazil
Karl W. Ascher
Cincinnati
Raynold N. Berke
Hackensack, New Jersey
Frank D. Costenbader
Washington, D. C.
Isadore Givner
New York
Dewey Katz
Hartford, Connecticut
Brendan D. Leahey
Lowell, Massachusetts
Alden H. Miller
Los Angeles
Lewis F. Morrison
San Francisco
Ralph Harrison Pino
Detroit
Aubrey G. Rawlins
San Francisco
Hunter H. Romaine
New York
G. Victor Simpson
Washington, D. C.

SYMPOSIUM
(To be announced)

AUTHORS OF PAPERS

All slides or films must be in the hands of the projection operator before the opening of each session.

Please be prepared to submit papers to the recorder immediately following presentation.

SECTION ON OTOLARYNGOLOGY

Monday, October 15, 1956

2:00 p.m.

GRAND BALLROOM

Presiding Officer:
A. C. FURSTENBERG, M.D.
President

Secretary:
LAWRENCE R. BOIES, M.D.

THE EFFECT OF SOLUTIONS OF VARIOUS ELECTROLYTIC CONTENT ON LIVING CELLS (A Motion Picture)

George E. Shambaugh, Jr., M.D.
Chicago

To study the effects on the living cell of solutions commonly used for irrigating the wound in surgical procedures, experiments were conducted in the tissue cul-

ture laboratory of Professor Charles M. Pomerat at the University of Texas. Living cultures of human epidermis, and of cochlear and middle ear epithelium from the cat were perfused with normal saline, Ringer's solution, and Gey's balanced salt solution.

By means of time-lapse cinematography with phase-contrast illumination, the effect of these various solutions on living cells was photographed. The damaging effect of so-called physiological normal saline on cultures of living cells is very evident, as has been demonstrated previously. Ringer's solution is very much less damaging, but the least damaging of the three solutions tested is the balanced salt solution of Gey. Further research is under way to study the effect of irrigating solutions on the fenestration operation and in other surgical procedures.

2:30 p.m.

PRESBYCUSIS

Joseph Sataloff, M.D.
and
Hyman Menduke, Ph.D.
BY INVITATION
Philadelphia

The increased life span, the problems associated with industrial deafness, and the need for more effective hearing aids in cases of presbycusis have created a growing need for additional data on the expected or physiologic loss of hearing acuity in individuals over 65 years of age. Large scale surveys in the past have investigated presbycusis which occurs before the patient has reached the age of 60 or 65; they have included little information on older subjects.

In the present study, hearing thresholds at various frequencies for 200 men and women between the ages of 65 and 93 are presented and analyzed. These subjects showed no evidence of middle ear disease and had had no exposure to noise sufficient to cause acoustic trauma.

The usefulness of currently used hearing aids in the management of the presbycusis-type of losses is mentioned. There is also a brief discussion of the frequent disparity between threshold loss as indicated by an audiogram and the ability of an aged individual to interpret speech.

3:00 p.m.

NEWER TEACHING AIDS IN OTOLOGY

Irvin Hantman, M.D.
Washington, D. C.

The author, in an attempt to facilitate and dramatize teachings of diseases of the middle ear, has originated several teaching aids which it is felt will make teaching procedures easier. These will be demonstrated.

"Ear manikins" in which the auricle, external canal and drum membrane, both in the adult and in the child, are closely simulated, using flexible moulages and organic membranes made of sheep's intestines, will be described. By use of these manikins, myringotomies and aspirations of the middle ear can be taught, the student actually making the incision and withdrawing fluid as in life. Techniques of attic irrigations and treatment of perforations can also be taught.

A new setup will be demonstrated to show how groups of physicians may be taught middle ear diseases by using individual ear moulages. These moulages are mounted on lighted backgrounds against which colored photographs of the individual eardrum can be put. Each student may (by using the otoscope) view the various conditions of the drumhead personally while the instructor, using copies of the same photographs and projecting them on a screen, may explain the clinical condition present.

Apparatus will also be shown by which the teacher and the student may view the tympanic membrane at the same time.

3:30 p.m.

SURGICAL MANAGEMENT OF COMPLETE AND INCOMPLETE ATRESIA OF THE POSTERIOR NARES

Henry H. Beinfield, M.D.
Brooklyn

Since 1853, when Emmert first created an opening by using a trocar to puncture the atresia, many and varied techniques for the correction of atresia of the posterior nares have been described. With the passing of the years, the techniques improved, each one striving to obtain an opening which would not close, but all

failed in accomplishing the desired result. The failure was due to the fact that the anatomy of the atresic nares was not taken into consideration.

The paper to be presented describes the anatomy present in complete and incomplete bony atresia of the posterior nares. The method for creating a normal-sized permanent opening in the posterior nares is explained. The exposure obtained is good, and the procedure is anatomically, surgically and physiologically correct. The elevation of the nasal mucous membrane from the floor of the nose is the approach used to reach the atresia. Both nasal and pharyngeal mucous membranes are utilized to cover the newly created bony opening, thereby preventing it from closing. The surgery is simple and effective, and is not destructive to any of the surrounding structures.

In cases of asphyxia neonatorum due to a bilateral atresia of the posterior nares, the principle of preserving the mucous membrane to cover the newly created opening is the same but the approach is somewhat different.

4:00 p.m.

THE USE OF THE MUCOLYTIC AEROSOLS IN RESPIRATORY DISEASES

Joseph B. Miller, M.D.
Mobile, Alabama

The inhalation of mucolytic aerosols is an effective method of liquefying and loosening bronchial secretions and mucous plugs, of coating dry, irritated mucous membranes with a demulcent, and of carrying other aerosol medications into the lungs. The safest and most effective mucolytic aerosol at the present time is a unique detergent incorporated in alevaire. Other new aerosols will also be discussed, including a new, effective antifoaming agent for pulmonary edema; a topical anesthetic aerosol for bronchoscopy and bronchography; and a new combination of sympathomimetics for bronchodilation and mucosal decongestion better than any heretofore available.

4:30 p.m.

THE LARYNX AND THE VOICE (A Motion Picture)

Hans Von Leden, M.D.
and
Paul Moore, Ph.D.
BY INVITATION
Chicago

After a brief review of the pertinent anatomy, this educational film presents a detailed picture of the normal larynx in voice production.

The exact synchronization of action and sound gives an impression of realism. The importance of ultrahigh-speed photography is demonstrated by a series of common sounds, photographed at the rate of 5000 frames a second.

Newer observations on normal laryngeal physiology confirmed by this film include a new concept of abduction, asychrony of vibration, relation of length and mass to pitch, and the motion of the loose mucous membrane during phonation.

The complexity and diversity of laryngeal adjustments are illustrated by a cough and a coup de glotte.

SECTION ON OPHTHALMOLOGY

Tuesday, October 16, 1956
9:00 a.m.
GRAND BALLROOM

Presiding Officer:
M. HAYWARD POST, JR., M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

LETHAL MIDLINE GRANULOMA WITH ORBITAL INVASION (A Clinicopathologic Case Report)

Howard A. Naquin, M.D.
Baltimore
and
James R. Duke, M.D.
Tampa, Florida
BY INVITATION

A case of lethal midline granuloma occurring in a 35-year-old white male is presented.

The process has progressed relentlessly in spite of all therapy, and orbital invasion has necessitated exenteration of the orbit.

9:10 a.m.

THE LENS EPITHELIUM IN THE PATHOGENESIS OF CATARACT (XIII Jackson Memorial Lecture)

Ludwig von Sallmann, M.D.
Bethesda, Maryland

9:55 a.m.

THE SCLERAL FOLD OPERATION FOR RETINAL DETACHMENT (A Motion Picture)

William G. Everett, M.D.
BY INVITATION
and
Jay G. Linn, Jr., M.D.
Pittsburgh

This Film demonstrates the technique of the scleral fold operation, a new operation for use in cases of retinal detachment. This procedure is used for most detachments for which a scleral shortening is indicated.

Since the original report of this operation one and one-half years ago by W. G. Everett, clinical experience and animal experimentation have led to various modifications of the original procedure. This film attempts to give a step-by-step portrayal of the operation including the most recent modifications.

10:05 a.m.

THE TREATMENT OF RETINAL DETACHMENT BY VITREOUS IMPLANT

Donald M. Shafer, M.D.
New York

Discussers:
Dohrmann K. Pischel, M.D.
San Francisco
Graham Clark, M.D.
New York

The technique consists in doing a standard diathermy to seal the retinal tears, followed by injecting sterile pooled human vitreous through a sclerotomy at the pars plana that is closed by water-tight mattress sutures. A short colored motion picture of the technique will be available.

Seventy-five cases of complicated retinal detachment have been treated in this manner. In every case but two, previous retinal surgery had failed. A gratifying number of reattached retinas have resulted, with the great advantage of almost insignificant postoperative complications. A detailed breakdown of statistics will be reported.

10:45 a.m.—Recess

10:55 a.m.

THE BULBAR CONJUNCTIVAL LYMPHATICS AND THEIR CLINICAL SIGNIFICANCE

H. Saul Sugar, M.D.
and
Ahmed Riazi, M.D.
BY INVITATION
Rome Schaffner, M.D.
BY INVITATION
Detroit

Discussers:
Kenneth C. Swan, M.D.
Portland, Oregon
Karl W. Ascher, M.D.
Cincinnati

By means of vital staining with trypan-blue by Busacca's method, the main bulbar conjunctival lymphatic channels have been outlined in 60 human eyes and a definite pattern determined whereby the main drainage is to two external canthal channels. The relation to the surrounding channels is indicated.

The clinical significance is considered under two headings: (1) lymphangiectasia and lymphatic cysts, and (2) the relationship of the lymphatics to the effect of drugs injected subconjunctivally. Cases of lymphangiectasia treated by dionin, by dye injection, and by excision are compared.

A comparison of injections of fluorescein, subconjunctivally and under Tenon's capsule, in a series of cases to determine the means of entrance of drugs into the anterior chamber proved that subconjunctival injection led to earlier entrance from the edge of the cornea, evi-

dently by way of the lymphatics. This result is opposite from that found in 1955 by Swan. The reasons for this opposite result are explained.

Colored slides and a short motion picture of the bulbar conjunctival lymphatics will be shown.

11:35 a.m.

CATARACT EXTRACTION FOLLOWING FILTERING OPERATION FOR GLAUCOMA
(A Motion Picture)

Harold G. Scheie, M.D.
Philadelphia

A method of cataract extraction is demonstrated. A superior corneal incision is made which is perpendicular to the surface of the cornea. This leaves the smallest possible overhanging corneal ledge, and with preplaced appositional sutures this ensures accurate and firm wound closure. Delivery of the lens is accomplished by conventional methods.

11:50 a.m.

PRERETINAL AND OPTIC NERVE-SHEATH HEMORRHAGE

Dale C. Smith, M.D.
BY INVITATION
Thomas P. Kearns, M.D.
and
George P. Sayre, M.D.
BY INVITATION
Rochester, Minnesota

Discussers:
Frank B. Walsh, M.D.
Baltimore
Windsor S. Davies, M.D.
Detroit

Preretinal hemorrhage generally is recognized to be a rather characteristic finding in patients suffering from subarachnoid bleeding. Hemorrhage of the optic nerve sheath probably is as common but is not so well recognized, since it is not visualized ophthalmoscopically. Ballantyne in 1943 first stressed the fact that hemorrhage of the optic nerve sheath, as well as intraocular hemorrhage, is an independent phenomenon which has no direct continuity with the intracranial bleeding that is also present. Walsh and Hedges have recently concurred in this opinion. A study of the pathologic factors which led the authors, also, to agree with this opinion is presented. An experimental technique in which dogs and monkeys are used is described. Neither retinal hemorrhage nor hemorrhage of the optic nerve sheath occurred in the dog, but these types of hemorrhage were produced in the monkey. This experimental production of preretinal hemorrhage and hemorrhage of the optic nerve sheath would seem to confirm further the concept that the processes are independent hemorrhagic phenomena.

SECTION ON OTOLARYNGOLOGY

Tuesday, October 16, 1956
2:00 p.m.
GRAND BALLROOM

Presiding Officer:
HENRY L. WILLIAMS, M.D.
Vice-President

Secretary:
LAWRENCE R. BOIES, M.D.

WHAT'S NEW IN THE TREATMENT OF OTITIS EXTERNA?

The Dermatologist's Viewpoint

Eldon T. Perry, M.D.
Philadelphia
BY INVITATION

For more than a century all diseases of the skin lining the external auditory canal have been grouped together under the common diagnosis of "otitis externa." Many investigators have even tried to find one etiologic agent responsible for all instances of this disorder. Indictments have been made against fungi and bacteria, and later against seborrheic dermatitis and neurodermatitis. Although each of these causes operates in specific instances, no one etiologic agent accounts for all cases. The causes are manifold and probably vary with geographical location and season.

It is incumbent upon the attending physician to make the necessary investigation to permit a more definite diagnosis. The patient must be questioned

and the skin must be examined for evidences of any previous or concurrent dermatosis in other areas. Any abnormal condition of the middle ear must be completely evaluated. Finally, bacteriologic and mycologic studies must be conducted when indicated, and biopsy of the external auditory canal must be performed whenever it is required. Unless these requirements are fulfilled, the diagnostic study cannot be considered to be adequate and therapy can be only symptomatic. With adequate diagnosis and specific therapy, on the other hand, a decrease in the incidence of recalcitrant otitis externa can be expected.

The Otologist's Viewpoint

Ben H. Senturia, M.D.
St. Louis

The majority of cases of inflammatory disease of the external ear seen by the otologist have findings consistent with a diagnosis of diffuse external otitis. To a lesser extent, secondarily infected seborrheic dermatitis, neurodermatitis and atopic dermatitis are treated. A small number of cases of recurrent fungous infections of the meatus and of postoperative mastoid and fenestration cavities are regularly observed.

On the basis of recent animal and human studies, the various factors believed to be of importance in the production and treatment of acute diffuse external otitis will be presented. The role of the otologist in the handling of secondarily infected dermatoses will be assessed. Consideration will be given to the cause and control of recalcitrant otomycosis.

2:40 p.m.

EARDRUM AND MASTOIDECTOMY PHOTOGRAPHY

Richard A. Buckingham, M.D.
Oak Park, Illinois

A method of photographing in color the eardrums and the surgical field in mastoidectomy, using the Brubaker-Holinger Endoscopic Camera, will be demonstrated. Kodachrome slides showing typical and unusual findings during otoscopy will be shown. The findings of secretory otitis and unresolved acute otitis media in children will be emphasized because of the prevalence of this problem in the present era of antibiotics. The otoscopic findings of chronic disease of the middle ear will be compared with the histopathologic changes found at the time of mastoidectomy.

3:00 p.m.

SYMPOSIUM: DISORDERS OF THE SALIVARY GLANDS

The Common and Uncommon Disorders

Frank Lathrop, M.D.
Boston

Disease of the major salivary glands is due either to a disturbance in the development or function of the gland; to its involvement by calculus formation, inflammation or neoplasm; or to an obscure condition of unknown etiology such as Mikulicz's disease, Sjogren's syndrome or uveoparotid fever.

In the majority of instances, the diagnosis may be established by a careful history and clinical examination. Roentgen examination of the involved gland, probing of the main duct and sialography to demonstrate the status of the duct system of the gland may be necessary in some cases before the diagnosis can be established. Biopsy of a salivary gland prior to definitive surgical intervention generally is contraindicated unless there is some doubt as to the nature of the process involving the gland.

Treatment is determined by the pathologic process exhibited by the involved gland.

Secretory Sialography

Irving Blatt, M.D.
BY INVITATION
and
James Maxwell, M.D.
Ann Arbor, Michigan

A modification of sialography termed physiological or secretory sialography is presented. The basic features of this technique are the use of a polyethylene catheter, a closed system of injection, and physiological reflex stimulation of the salivary gland to evacuate the contrast material.

Secretory sialography has been applied to patients with various diseases of the major salivary glands, including inflammatory diseases, both obstructive and nonobstructive; neoplasms extrinsic to

the salivary gland; intrinsic circumscribed (encapsulated) tumors, and intrinsic infiltrative neoplasms. In this presentation an attempt is made to correlate the clinical, pathologic and sialographic observations.

Surgical Management of Tumors of the Parotid
(A Motion Picture)

John J. Conley, M.D.
New York

This film illustrates the radical surgical extirpation of the entire parotid gland and facial nerve and radical neck dissection for the treatment of high-grade malignant tumors of the parotid gland, with metastasis. The surrounding tissue is rehabilitated by immediate nerve grafting and muscle rotation techniques. Illustrative cases are submitted.

Discussion
James Maxwell, M.D.

4:15 p.m.

AUTOMOBILE FRACTURES OF THE LARYNX
(A Motion Picture)

Paul H. Holinger, M.D.
Kenneth C. Johnston, M.D.
and
Paul W. Greeley, M.D.
BY INVITATION
John W. Curtin, M.D.
BY INVITATION
Chicago

The marked laryngeal deformity that follows fractures of the larynx due to automobile accidents is illustrated by mirror and endoscopic views as well as by roentgenograms of the neck. In untreated cases with marked deformity and airway obstruction, the scar is removed, and is replaced by endolaryngeal skin grafts. Successive mirror and endoscopic views of the larynx show how the graft lines the airway to permit decannulation. The value of prompt restoration of the airway following injury is stressed and illustrated by a sequence of views of a patient treated by early cartilage replacement and intralaryngeal splintings.

4:35 p.m.

STUDIES CONCERNING VESTIBULAR FACTORS IN BALLET DANCING

Kurt Tschiassny, M.D.
Cincinnati

It is well known to ballet dancers that certain intentionally performed rhythmical movements of the head prevent dizziness during, and particularly upon stopping, a spin (pirouette). These head movements are carried out under visual control by keeping a reference point focused during rotation. This maneuver is called by the girls "spotting" and is an integral part of their professional training. There is a striking analogy between the dancer's "spotting" and the physiologic head nystagmus of the pigeon. The latter appears essentially as the result of an optokinetic reflex. Experiments with a dancer rotated on the Barany chair alternately with and without "spotting" and a pigeon on a rotating disc with the eyes alternately uncovered and blindfolded, show identical results in regard to postrotatory conditions. Evidence is obtained from these experiments that the dancer's intentionally performed "spotting" and the pigeon's reflexly induced head nystagmus are analogous procedures with the same effect: prevention of postrotatory vestibular stimulation.

SECTION ON OPHTHALMOLOGY

Wednesday, October 17, 1956
9:00 a.m.
GRAND BALLROOM

Presiding Officer:
WALTER S. ATKINSON, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

STURGE-WEBER-DIMITRI SYNDROME
(A Clinicopathologic Case Report)

Isadore Givner, M.D.
and
Leon Roizin, M.D.
BY INVITATION
New York

Harold H. Berman, M.D.
BY INVITATION
George Gold, M.D.
BY INVITATION
Staten Island, New York

An enucleation of the prominent left eye of a five-months-old baby was performed because of uncontrollable tension and questionable transillumination. Examination revealed hemangioma of the choroid and obliteration of the anterior chamber.

The child had an angioma of the left forehead, intermittent siezures of the jacksonian type, and cortical atrophy.

The child died at the age of 3 years and 9 months of bronchopneumonia. Postmortem examination disclosed microencephaly, especially of the left hemisphere, and widely disseminated angiomatous formations.

9:10 a.m.

SYMPOSIUM: POSTOPERATIVE CATARACT COMPLICATIONS

(Pathogenesis, Clinical Manifestations, Pathology and Treatment)

Michael J. Hogan, M.D., Moderator
San Francisco
John M. McLean, M.D.
New York
A. Edward Maumenee, M.D.
Baltimore

I. DR. MCLEAN

A. Delayed restoration of the anterior chamber
B. Secondary glaucoma
C. Iris incarceration and prolapse sympathetic ophthalmia
D. Corneal edema

II. DR. HOGAN

A. Postoperative iridocyclitis
B. Postoperative infection
C. Aftercataract

III. DR. MAUMENEE

A. Epithelial downgrowth
B. Retinal separation
C. Late corneal edema
D. Anterior chamber hemorrhage

10:40 a.m.—Recess

10:45 a.m.

MODIFIED ORBITAL DECOMPRESSION (A Motion Picture)

William J. Knauber, Jr., M.D.
Jacksonville, Florida

A motion picture demonstrates a modified technique of lateral orbital decompression into the temporal fossa. This technique differs from the usual lateral decompression in that the temporalis muscle within the temporal fossa is removed to allow a greater area for decompression. Also, the bony defect in the lateral wall is approximately doubled by removing a large portion of the great wing of the sphenoid. An average recession in exophthalmos of eight millimeters has been obtained by using this technique in five cases.

11:00 a.m.

THE ROLE OF STRESS IN OCULAR DISEASE

Isaac S. Tassman, M.D.
Philadephia

Discussers:

Harley E. Cluxton, Jr., M.D.
Chicago
BY INVITATION
David O. Harrington, M.D.
San Francisco

Mental and emotional stress is an important nonspecific factor in the etiopathogenesis of a number of ocular diseases. It is intimately concerned with disturbance of homeostasis in the ocular tissues, and with dysfunction of the autonomic nervous system and the pituitary-adrenal system in the occurrence of primary glaucoma, hypertensive retinopathy and diabetic retinopathy.

The general adaptation syndrome is applicable to certain physiological functions in the structures of the eye. Most of the cases of nongranulomatous iridocyclitis, retrolental fibroplasia and sympathetic ophthalmia present evidences of some form of stress.

The secretion of ACTH and the adrenal hormones in response to chronic stress apparently has a close relationship to the incidence of the retinopathy in patients

with vascular hypertension and diabetes mellitus, especially in cases of long duration.

11:40 a.m.

SCLERAL SHORTENING: A NEW AND SIMPLIFIED METHOD OF USE IN RETINAL DETACHMENT
(A Motion Picture)

Daniel M. Rolett, M.D.
New York

The technique of this modified method of scleral shortening will be described and demonstrated. The advantages of this technique will be elaborated.

11:50 a.m.

THE TREATMENT OF RETINOBLASTOMA WITH RADIATION AND TRIETHYLENEMELAMINE

Algernon B. Reese, M.D.
and
George A. Hyman, M.D.
BY INVITATION
George R. Merriam, Jr., M.D.
New York
Arnold W. Forrest, M.D.
White Plains, New York

Discusser:
William F. Hughes, Jr., M.D.
Chicago

In 1955 we reported our results in the treatment of retinoblastoma by radiation and triethylenemelamine. The purpose of this presentation is to give a further follow-up of the eyes originally treated and reported, and to compare this series of twenty-two eyes to a series of twenty-two eyes treated by radiation alone. The results indicate a preference for the combined treatment.

SECTION ON OTOLARYNGOLOGY

Wednesday, October 17, 1956
2:00 p.m.
GRAND BALLROOM

Presiding Officer:
A. C. FURSTENBERG, M.D.
President

Secretary:
LAWRENCE R. BOIES, M.D.

PRESENTATION OF NEW INSTRUMENTS

2:30 p.m.

THE SURGICAL APPROACH IN PHARYNGOESOPHAGEAL DIVERTICULUM (ONE STAGE)

Herbert H. Harris, M.D.
Houston, Texas

A film in color, with narration by the author. It includes:

1. Anatomical considerations. This is demonstrated by diagrams.
2. The three stages of development, illustrated with diagrammatic drawings.
3. Review of the roentgenograms in a case of third stage diverticulum. The surgical procedures in this case are those shown in the next section of the film.
4. Introduction of the feeding tube, cleansing of the diverticulum sac and the various surgical steps.
5. A diagrammatic illustration of the primary closure of the sac.

2:50 p.m.

RES MEDICA, 1956
(XII Wherry Memorial Lecture)

Arthur W. Proetz, M.D.
St. Louis

3:35 p.m.

SYMPOSIUM: ALLERGY OF THE EAR

Criteria for the Diagnosis of Allergic Disease

Herbert Rinkel, M.D.
Kansas City, Missouri
BY INVITATION

Allergy of the External Ear

Edley Jones, M.D.
Vicksburg, Mississippi

Allergy of the Middle Ear

Eugene Derlacki, M.D.
Chicago

Allergy of the Inner Ear

Raymond E. Jordan, M.D.
Pittsburgh

The panel will attempt to define allergic disease of the external, middle, and internal ear. As an allergist, Dr. Rinkel will present the general principles of allergic diagnosis, including specific allergen diagnosis. The other members of the panel will discuss external, middle, and internal ear disorders which they feel will fulfill the required criteria for a diagnosis of allergic disease. Management of the disease entities will necessarily be included, since the therapeutic result is often the final test of diagnosis of allergic disease.

In the final summary by Dr. Rinkel, the panel will seek an opinion as to whether the conditions for allergic diagnosis have been satisfied, and whether, in each segment of the ear discussed, allergy of the ear as a disease entity has been established.

4:45 p.m.

ON CIGARETTE SMOKING, BRONCHIAL CARCINOMA AND CILIARY ACTION: THE TIME ELEMENT IN THE EXPOSURE TO CARCINOGENIC SUBSTANCES AND ITS RELATION TO CARCINOGENESIS

Anderson C. Hilding, M.D.
Duluth, Minnesota

This phase of a series of studies relating cigarette smoking and ciliary action to the potential etiologic factors involved in bronchogenic carcinoma describes the mechanism whereby increased time of exposure of certain areas of the respiratory tract may occur. The obstruction and retardation of ciliary streaming (more or less physiologic) increase the time of localized application of carcinogenic substance, and this phenomenon may bear an important relation to carcinogenesis in the bronchial tree. Several factors that may cause such retardation are described. Comparison is made with physiologic retardation and sites of predilection for carcinogenesis in the gastrointestinal tract.

SECTION ON OPHTHALMOLOGY

Thursday, October 18, 1956

9:00 a.m.

GRAND BALLROOM

Presiding Officer:
M. HAYWARD POST, JR., M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

IDIOPATHIC THROMBOPHLEBITIS OF ORBITAL VEINS SIMULATING PRIMARY TUMOR OF ORBIT (A Clinicopathologic Case Report)

Lorenz E. Zimmerman, M.D.
Washington, D. C.
BY INVITATION
and
Joseph B. Rogers, M.D.
Oxford, Mississippi

A 69-year-old white woman, in obvious pain because of a markedly proptosed right eye, reported ocular pain of two years' duration. The eye was displaced straight forward and could not be pushed back into the orbit. Congestion was marked, but there was no bruit. During a seventeen-day period of observation, the vision was reduced from 20/60 (corrected) to counting fingers, and the previously normal visual field became contracted concentrically to 30 degrees. An orbital evisceration was performed, the preoperative diagnosis being probable sarcoma of the orbit. At operation no definite tumor was encountered, nor was there any hard core of inflammatory tissue such as is often found in pseudotumors of the orbit. Pathologic study revealed extensive thrombophlebitis of all the orbital veins, large and small. There was an extensive reactive myositis in the extraocular muscles, but no evidence of generalized orbital cellulitis. The cause and pathogenesis of the thrombophlebitis was not determined.

9:10 a.m.

PRESENTATION OF NEW INSTRUMENTS

9:20 a.m.

SYMPOSIUM: ACCOMMODATIVE ESOTROPIA

Relationship Between Accommodation and Convergence

Goodwin M. Breinin, M.D.
New York

Classification and Diagnosis

Kenneth C. Swan, M.D.
Portland, Oregon

Principles of Treatment

Frank D. Costenbader, M.D.
Washington, D. C.

Summary and Conclusions

Kenneth C. Swan, M.D.

10:20 a.m.

PENETRATING WOUNDS OF THE EYE

P. Robb McDonald, M.D.
Philadelphia

Discusser:
Murray F. McCaslin, M.D.
Pittsburgh

Any penetrating wound of the eye is usually a serious injury and should be considered as an emergency. Treatment to prevent infection should be started immediately and a roentgenogram taken to determine the presence or absence of an intraocular foreign body. Treatment specific for corneal lacerations, prolapsed iris tissue, and injury to the lens will be discussed. Techniques for the removal of intraocular foreign bodies will be described.

10:50 a.m.—Recess

10:55 a.m.

SCLERAL SUPPORT WITH METAL RINGS IN INTRAOCULAR SURGERY (A Motion Picture)

Girolamo Bonaccolto, M.D.
New York

The use of a fine, rigid steel ring (0.5 mm. thick) in selected cases of intraocular surgery, particularly extraction of complicated cataracts, subluxated lenses and corneal grafting, has proved effective in maintaining scleral rigidity and globe contour, thereby (1) preventing vitreous presentation or loss and (2) facilitating corneal section, delivery of the lens, delicate manipulations in corneal surgery and appositional closure of sclerocorneal and conjunctival wounds. This technique will be illustrated in operations on two patients.

The author has been impressed by the fact that after making the corneal section and withdrawing the keratome, the anterior chamber, which usually completely collapses, was still partially formed, indicating not the slightest increase in intraocular pressure. Postoperatively, the perfect closure of conjunctival and sclerocorneal wounds ensured the maintenance of a formed chamber. The pupil remained round and centrally placed from the first day, and there was no striate keratitis.

11:15 a.m.

ESTIMATION OF LOSS OF VISUAL EFFICIENCY

Edmund B. Spaeth, M.D.
Philadelphia

Discusser:
Percival E. Thompson
Chicago
BY INVITATION

The report on Appraisal of Loss of Visual Efficiency, adopted by the American Medical Association on June 13, 1940, has been revised, approved and accepted by the American Medical Association as of June 1955, and reissued under the title "Estimation of Loss of Visual Efficiency." The report is presented in eight subsections: Essential factors in determining visual efficiency, central visual acuity, visual field, and ocular motility constitute the first four sections. The next two sections of the report are concerned with the calculation of visual efficiency of one eye and of binocular visual efficiency. Finally, two brief sections present types of ocular abnormalities not included in the visual efficiency factors, and certain recommendations relative to the final estimation of visual efficiency. The aim of the report was to

revise prior methods of determining the loss of visual efficiency for persons who have suffered visual impairment as a result of disease or injury.

Considering the widespread use of the original report as an authority by physicians, insurance commissions, organizations concerned with industrial health, and compensation courts, and in view of recent Superior Court decisions not concurred in by the Committee, this presentation has great significance.

11:45 a.m.

EYE PROTECTION AGAINST SMALL HIGH SPEED MISSILES

H. W. Rose, M.D.
BY INVITATION
George M. Stewart
BY INVITATION
Randolph Field, Texas

Discusser:

Arthur H. Keeney, M.D.
Louisville, Kentucky

Industry and the Armed Forces presently protect the eye against perforating wounds by foreign bodies with hardened glass lenses. These lenses are not broken if tested with steel balls of about 18 mm. diameter at velocities of about 17 feet per second. This resistance to breaking is gained by introducing stresses in the skin of the hardened lens by heating and sudden cooling. Most penetrating foreign bodies which are seen clinically are around 1 mm. to 2 mm. in size. Experiments were performed to determine the ballistic limit for the rabbit cornea, for unhardened glass lenses, for hardened as well as laminated glass lenses, and for plastic lenses. For missiles of a size often clinically observed in penetrating wounds of the eye, hardened lenses offer inferior protection compared with unhardened lenses. Hardened lenses are broken at a velocity below the penetration velocity of the cornea. They are then no protection but a hazard due to secondary missiles. The best protection was offered by plastic lenses.

SECTION ON OTOLARYNGOLOGY

Thursday, October 18, 1956
2:00 p.m.
GRAND BALLROOM

Presiding Officer:
HENRY L. WILLIAMS, M.D.
Vice-President

Secretary:
LAWRENCE R. BOIES, M.D.

RECONSTRUCTION OF THE ACROMEGALIC JAW (A Motion Picture)

Robert C. Seely, M.D.
New York

The author stresses the importance of the submental U-shaped incision as the most logical approach to surgical problems involving the mandible and floor of the mouth.

The operative procedure presented was done for hypertrophy of the mandible with excessive prominence of the symphysis in a patient with overbite of the mandible (malocclusion, class 3). Transection of the mandible involves two steps which guarantee the preservation of the mandibular nerve and vessels.

Skeletonization of the mandible through one incision permits visualization and technical access for symmetry and perfection of the surgical procedure. Preoperative and postoperative photographs and dental models are exhibited to show normal occlusion as the end result.

2:25 p.m.

CHRONIC FRONTAL SINUSITIS: END RESULTS OF SURGICAL TREATMENT

Guy Boyden, M.D.
Portland, Oregon

The author will summarize a 20-year personal experience with the external frontal sinus operation for chronic disease with the use of the mucoperiosteal flap, first described by E. C. Sewall.

3:05 p.m.

APHAGIA FROM POLIOMYELITIS: TREATMENT BY DENERVATION OF THE CRICOPHARYNGEUS MUSCLE

Benjamin Bofencamp, M.D.
Minneapolis

This report concerns two cases of complete aphagia of several months' duration which were successfully treated by denervation of the cricopharyngeus muscle. A brief consideration of the anatomy, neurology, and physiology of the cricopharyngeus muscle will be presented. The surgical technique involved in denervation of the cricopharyngeus muscle will be outlined.

3:35 p.m.

ADVANCED CARCINOMA OF THE LARYNX AND HYPOPHARYNX: SURGICAL EXPERIENCES

Maurice F. Snitman, M.D.
Arthur Loewy, M.D.
Chicago

Fixed metastatic neck nodes or distant metastatic lesions, rather than the extent of the primary carcinoma of the larynx or hypopharynx, constitute a contraindication to surgical management. The guiding principles of surgical management must be wide exposure and adequate resection, which, when indicated, should include the entire hypopharyngeal wall. Cosmesis and organ function are factors for later consideration in the reconstructive phase of surgical management but do not in themselves influence the primary en bloc resection. Present experience indicates that in extensive lesions, the surgical approach offers less morbidity and a greater chance of survival than do other modalities. Sufficient experience now permits presentation of cases in which either cures have been complete or benefits short of cure have been derived.

4:05 p.m.

STAPES MOBILIZATION
(Motion Pictures)

I

Howard House, M.D.
Los Angeles

This film was created as a teaching aid in illustrating the approach and various manipulations used in mobilizing the fixed stapes footplate. It also depicts possible surgical complications.

II

Milos Basek, M.D.
BY INVITATION
and
Edmund P. Fowler, Jr., M.D.
New York

This motion picture is in color with sound.

A short historical review of stapes mobilization operations is given.

Animation photography makes it possible to illustrate and explain not only the stapedial mechanics in the normal and the otosclerotic ear but also the rationale for anterior crurotomy and fracture of the footplate of the ankylosed stapes.

Technical details of various procedures are shown by applying them on fresh specimens of temporal bones and isolated stapedes, particular attention being paid to the minute details of fracturing the stapedial footplate. These are shown as viewed from the middle ear as well as from the inside of the vestibule. Most of the currently used techniques for this purpose are represented.

The motility of the ossicular chain of an actual otosclerotically ankylosed specimen is demonstrated, as well as that of artificially ankylosed specimens.

The consecutive steps of procedures in the operating room conclude the picture.

SECTION ON OPHTHALMOLOGY

Friday, October 19, 1956
9:00 a.m.
GRAND BALLROOM

Presiding Officer:
WALTER S. ATKINSON, M.D.
Vice-President

Secretary:
KENNETH L. ROPER, M.D.

PRESENTATION OF NEW INSTRUMENTS

9:10 a.m.

HETEROCHROMIA OF THE IRIS PLUS IPSILATERAL GLAUCOMA EQUALS DIFFUSE MALIGNANT MELANOMA OF THE IRIS

Benjamin Rones, M.D.
and
Lorenz E. Zimmerman, M.D.
BY INVITATION
Washington, D. C.

This clinicopathologic study is an initial phase of extensive investigation of the material on tumors of the iris in the Ophthalmic Registry of the Armed Forces Institute of Pathology. In reviewing the diffuse malignant melanomas of the iris, it was often noted that one or more surgical procedures had been performed to reduce a persistently elevated intraocular pressure before the true nature of the lesion was recognized. Increased pigmentation of the iris associated with an elevation in the intraocular pressure should always cause one to suspect the presence of a diffuse malignant melanoma of the iris. A negative report on a biopsy of the iris previously performed does not rule out this diagnosis.

9:30 a.m.

EARLY TREATMENT OF ORBITAL FRACTURES

Byron Smith, M.D.
John M. Converse, M.D.
New York

The increasing number of orbital fractures resulting from motor vehicle accidents adds to the importance of, and general interest in, this subject. A brief review of the anatomy is correlated with the mechanisms and sequelae of midfacial trauma.

Diagnostic measures and reasons for diagnostic failures are discussed. The causes and mechanisms of enophthalmos and diplopia are postulated and explained. Herniation of orbital contents into the maxillary sinus, and fixation of tissue connected to the inferior rectus and inferior oblique muscles are demonstrated by projected slides and by a motion picture. The typical picture of heterotropia associated with severe orbital-floor fractures is shown.

A method of treatment by immediate open reduction and autogenous bone grafting is outlined.

9:55 a.m.

BILATERAL ANOMALIES OF THE OBLIQUE MUSCLES

Arthur Jampolsky, M.D.
San Francisco

Discussers:
Hermann M. Burian, M.D.
Iowa City, Iowa
William E. Krewson, III, M.D.
Philadelphia

A relative divergent position of the ocular axes favors contracture of the oblique musculature.

In monocular exotropia, contracture-overaction of the inferior oblique and of the superior oblique may occur simultaneously, evidenced by gross ocular rotations. Inequality of oblique contractures may also result; although in that case, contracture of the superior oblique is usually greater. In monocular amblyopia with exotropia of large degree, such oblique contractures may make it impossible to mobilize the eye by surgery after the horizontal muscles have been severed from the globe.

In alternating exotropia with equal vision in the two eyes, overaction of all oblique muscles is a common finding and is one of the mechanical reasons for the vertical anomalies commonly associated with exotropia.

Bilateral superior oblique overaction, because of the enhanced abduction in down gaze, may produce a marked exotropia in down gaze with little or no exotropia in direct up gaze, with no vertical imbalance in the primary position. Bilateral superior oblique surgery to gain comitancy in this condition is indicated only if fusion exists in some field and a difference of more than 40 prism diopters in the horizontal deviation exists between direct up and direct down gaze.

A short motion picture of ocular rotation illustrates these conditions.

10:25 a.m.

MALIGNANT MELANOMA IN THE TEMPORAL PERIPHERY ASSOCIATED WITH MACULAR SYMPTOMS AS AN INITIAL FINDING

Wilfred E. Fry, M.D.
P. Robb McDonald, M.D.
Philadelphia

Discusser:

Bertha A. Klien, M.D.
Chicago

This report is of two cases of malignant melanoma in the temporal periphery of the choroid, with central visual defects and macular ophthalmoscopic changes as initial findings.

Pathologic reports of these two cases are presented, with verification of the tumors and with macular changes demonstrated in one of the cases.

The sequence of events of interest in these cases was the initial complaint of a disturbance of central vision, macular edema evidenced by ophthalmoscopy, and macular changes detected in the pathologic specimen taken for examination at the time of operation.

The authors have not noted this sequence in other patients.

10:50 a.m.—Recess

10:55 a.m.

EXENTERATION OF THE ORBIT (A Motion Picture)

Algernon B. Reese, M.D.
New York

Two operative techniques for exenterating the orbit are shown: (1) the usual one with and without graft; (2) one originated by Naquin, utilizing the temporalis muscle to fill the orbit. Postoperative results are shown demonstrating the various means employed to conceal the blemish.

11:15 a.m.

USE OF THE HARRINGTON MULTIPLE PATTERN FIELD SCREENER IN INDUSTRY

Logan T. Robertson, M.D.
Asheville, North Carolina
BY INVITATION

Discusser:

David O. Harrington, M.D.
San Francisco

Ten thousand employees, about equally divided between men and women, at twelve plant sites have been examined with the field screener. The test has been used on individuals in all age groups, and adequate follow-up by an ophthalmologist has been attempted whenever abnormalities were discovered.

11:45 a.m.

FACTORS INFLUENCING THE BLOOD VOLUME OF THE CHOROID AND RETINA

Jerome W. Bettman, M.D.
Victor G. Fellows, Jr., M.D.
San Francisco

Discussers:

Irving H. Leopold, M.D.
Philadelphia
Arnall Patz, M.D.
Baltimore

Until recently there has been no good available method to evaluate the effect of drugs on the choroidal blood volume.

Radioactive phosphorus incubated into the red blood cells indicated changes in the blood volume of the retina and of the choroid, predominantly the latter. Agents influencing the blood volume have been tested on experimental animals by this method and then reclassified. For the first time we can demonstrate that certain agents do increase the choroidal blood volume when they are properly administered.

A brief classification is as follows:

I. Agents with a peripheral action

A. Those which cannot readily be administered locally. These have no effect when given systemically. Example: nitrites.

B. Those which can be administered locally and action of which is predominantly local. These drugs have a marked effect when administered by retrobulbar injection, but none when administered systemically. Examples: tolazoline (priscoline) or aminophyllin.

C. Those the action of which is predominantly systemic, even after local administration. These drugs have an effect on the ocular circulation which is the reverse of their generally accepted effect. Example: By retrobulbar injection, epinephrine increases the choroidal blood volume, probably as a secondary effect. Mecholyl injected retrobulbarly decreases the choroidal blood volume, probably because of peripheral vasodilation.

II. Agents with little or no peripheral action

A. Those with no ocular effect. Example: hexamethonium.

B. Those with an ocular effect secondary to the systemic effect. Such systemic effect usually precludes the clinical use of the drug. Example: nicotine.

III. Agents which **mechanically** alter the choroidal blood volume

A. Pressure

B. Paracentesis

C. Local Heat

IV. Reflex—Cold Pressor

Practical clinical conclusion: Only carbon dioxide systemically, certain drugs by retrobulbar injection, paracentesis, and possibly cold to the extremities are reasonably safe and effective in increasing the choroidal blood volume.

SPECIAL SCIENTIFIC PROGRAMS

These Special Programs are open meetings. All members and guests of the Academy are welcome to attend.

TEACHERS' SECTION—OTOLARYNGOLOGY and OPHTHALMOLOGY
(A Combined Meeting)

Grand Ballroom

Sunday, 10:00 a.m.

GORDON D. HOOPLE, M.D.
A. D. RUEDEMANN, M.D.
Co-Chairmen

THE FUTURE STATUS OF OPHTHALMOLOGISTS AND OTOLARYNGOLOGISTS IN MEDICAL SCHOOLS AND HOSPITALS

The Viewpoint of a Dean
A. C. FURSTENBERG, M.D.
Ann Arbor, Michigan

The Viewpoint of a Chairman of a Department of Surgery
FREDERICK A. COLLER, M.D.
Ann Arbor, Michigan
BY INVITATION

The Viewpoint of the Chairmen of the Teachers' Sections

I
A. D. RUEDEMANN, M.D.
Detroit

II
GORDON D. HOOPLE, M.D.
Syracuse, New York

AMERICAN ORTHOPTIC COUNCIL and AMERICAN ASSOCIATION OF ORTHOPTIC TECHNICIANS
Williford Room

Conrad Hilton Hotel

Sunday, 8:00 p.m.

HERMANN M. BURIAN, M.D.
President

EDMOND L. COOPER, M.D.
Secretary

Ocular Torticollis
WILLIAM E. KREWSON, III, M.D.
Philadelphia

Anomalous Retinal Correspondence: Diagnostic Tests and Therapy
JOSEPHINE S. KUKORA
Detroit

Electrophysiologic Insight in Ocular Motility
GOODWIN M. BREININ, M.D.
New York

The Television Trainer in Fusion Training
ELEANOR C. ANDERSON
San Diego
(A limited number of written questions may be answered by the speakers if time allows.)

OTOSCLEROSIS STUDY GROUP and COMMITTEE ON CONSERVATION OF HEARING

Grand Ballroom

Sunday, 8:00 p.m.

HOWARD P. HOUSE, M.D.
Chairman

Histopathology of Ankylosis of the Stapes Footplate
EDMUND P. FOWLER, JR., M.D.
New York

DISCUSSERS:
JOHN R. LINDSAY, M.D., Chicago
DOROTHY WOLFF, Ph.D., New York

Medical Implications of the Wisconsin State Fair Hearing Survey
ARAM GLORIG, M.D.
Los Angeles

DISCUSSERS:
MEYER FOX, M.D., Milwaukee
HALLOWELL DAVIS, M.D., St. Louis

Geriatric Otology
JOHN E. BORDLEY, M.D.
Baltimore

DISCUSSER:
GORDON D. HOOPLE, M.D., Syracuse, N. Y.

COMMITTEE ON PLASTIC AND RECONSTRUCTIVE SURGERY—OTOLARYNGOLOGICAL AND MAXILLOFACIAL

Gold Room, Congress Hotel

Tuesday, 8:00 p.m.

JOHN MARQUIS CONVERSE, M.D.
Chairman

Primary Plastic Repair of Nasal Defects with the Nasolabial Flap
SIDNEY K. WYNN, M.D.
Milwaukee

Plastic Surgical Principles in Tumor Surgery of the Head and Neck
JOHN J. CONLEY, M.D.
New York

Surgical Treatment of Mandibular Prognathism
JOHN B. ERICH, M.D.
Rochester, Minnesota

COMMITTEE ON PLASTIC AND RECONSTRUCTIVE SURGERY—OPHTHALMOLOGICAL

Florentine Room, Congress Hotel

Tuesday, 8:00 p.m.

WENDELL L. HUGHES, M.D.
Chairman

LACERATIONS IN THE REGION OF THE EYE

Immediate Treatment of Lid Lacerations
A. D. RUEDEMANN, M.D.
Detroit

Treatment of the Late Results of Lid Lacerations
DEANE C. HARTMAN, M.D.
Los Angeles

Treatment of Depressed and Adherent Scars
EDMUND B. SPAETH, M.D.
Philadelphia

Lacerations Involving the Bulbar Conjunctiva and the Eyeball
HARVEY E. THORPE, M.D.
Pittsburgh

Discussion
BYRON C. SMITH, M.D., New York
WENDELL L. HUGHES, M.D., New York

AMERICAN SOCIETY OF OPHTHALMOLOGIC and OTOLARYNGOLOGIC ALLERGY

Private Dining Room 14

Friday, 9:00 a.m.

DEAN M. LIERLE, M.D.
President

MICHAEL H. BARONE, M.D.
Secretary

The Mechanisms of Antiphlogistic and Antianaphylactic Actions of Cortisol with Particular Reference to the Cellular Metabolism of this Hormone
T. F. DOUGHERTY, PH.D.
Salt Lake City
BY INVITATION

Metabolic Immunity as Related to the Respiratory Tract
Z. Z. GODLOWSKI, M.D.
Chicago
BY INVITATION

Panel Discussion of Both of the Above Papers
FRENCH K. HANSEL, M.D., *Moderator*
St. Louis
HERMAN SEMENOV, M.D.
Beverly Hills, California
T. F. DOUGHERTY, PH.D.
Z. Z. GODLOWSKI, M.D.

SCIENTIFIC EXHIBITS

KENNETH L. ROPER, M.D., *Chairman*
EUGENE L. DERLACKI, M.D., *Co-Chairman*
CHICAGO, ILLINOIS

LOCATION:
Club Floor
PDR 15, 16, 17
Club Foyer

Exhibit S-1

Diploetic-Sclerotic Ratio in X-rays of Mastoids

WILLIAM F. BONNER, M.D., JOSEPH N. ANE, M.D., (by invitation) and WARNER KLOEPFER, M.D. (by invitation), Veterans Administration Regional Office (Medical Department) and Tulane University Medical School, New Orleans

By means of roentgenograms, the ratio of diploetic spaces to sclerotic areas in mastoid x-rays is demonstrated in 300 cases. Different types of ratios are correlated in photographs and audiograms with pathologic cases, as well as those with lesser or greater hearing losses.

Exhibit S-2

Ossicular Histology and Histopathology: A Study of the Ligaments, Joints and Osseous Structure of the Ossicles

RICHARD J. BELLUCCI, M.D., and DOROTHY WOLFF, Ph.D. (by invitation), Manhattan Eye, Ear and Throat Hospital, New York

The exhibit consists of enlarged photographs and photomicrographs depicting the elastic components of the ossicular ligaments, the ossicular joints, and bone diseases as seen in temporal bone specimens and in tissue removed for biopsy in routine temporal bone surgery, fenestrations, mobilizations, malformations and ankylosed malleoincudal joints.

Exhibit S-3

New Eyes for the Needy, Inc.

NEW EYES FOR THE NEEDY, INC., Short Hills, New Jersey, represented by Mrs. Cyrus R. Currier, Short Hills, New Jersey (by invitation); Mrs. Robert R. Heywood, III, Chatham, New Jersey (by invitation); and Mrs. Hanford B. Hurd, Short Hills, New Jersey (by invitation)

New Eyes for the Needy is a nonprofit volunteer charity dedicated to providing better vision to needy people both in this country and abroad. No money is solicited; the work is made possible through reclamation of discarded eye glasses and precious-metal scrap. New prescription glasses and artificial eyes are given to individuals screened by welfare agencies. Reusable plastic-framed glasses are tested and sent to hospital clinics and foreign missions. Funds have been established with forty-four hospitals, and many welfare agencies are allotted specific numbers of glasses each year.

Exhibit S-4

Home Study Courses, American Academy of Ophthalmology and Otolaryngology

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY, represented by Daniel Snydacker, M.D., Secretary for Home Study Courses, Chicago, and Ben H. Senturia, M.D., Associate Secretary in charge of Otolaryngology, St. Louis

This exhibit will show the purposes, scope and organization of the Home Study Courses.

Exhibit S-5

Methods of Correcting Low Vision

THE OPHTHALMOLOGICAL FOUNDATION, INC., and THE LIGHTHOUSE OF THE NEW YORK ASSOCIATION FOR THE BLIND, represented by Gerald Fonda, M.D., Short Hills, New Jersey

Nonoptical and optical methods for distant and near vision are exhibited. Nonoptical magnification is demonstrated as the most practical for distant use. The optical method is classified as regular lenses, in single vision, half-eye glasses and bifocals. One piece bifocals with reading additions of plus 40 diopters are shown. These are also presented in binocular correction as strong as plus 10.00. Doublet lenses, microscopic bifocals, and telescopic lenses are demonstrated. All of these lenses will be available for doctors to see and try for themselves.

Exhibit S-6

Fixation of Fractures of the Middle Third of Face Using Kirschner Wires

HERBERT H. HARRIS, M.D., and BEN M. NAIL, M.D. (by invitation), Baylor University College of Medicine, Houston, Texas

Various types of fractures of the middle third of the face are illustrated by the use of skulls. Four cases in which fixation was achieved by the use of Kirschner wires are presented by means of preoperative and postoperative photographs and roentgenograms.

Exhibit S-7

Oblique Illumination in Histopathology of the Eye

PAUL A. CIBIS, M.D. (by invitation), Department of Ophthalmology, Washington University School of Medicine, St. Louis

A new illumination device which can be attached to regular microscopes to permit rapid alternation of the microscopic illumination between transmitted and oblique light is demonstrated. Histologic sections of normal and pathologic eyes, stained with hematoxylin and eosin, exhibit characteristic chromatic changes which are specific for different tissue components. In the normal lens, the presence and architecture of discontinuity zones are demonstrated. Photomicrographs, drawings, and microscopic slides are presented to illustrate the use and potentialities of this new device in the study of normal and pathologic conditions of the eye.

Exhibit S-8

Aspiration Biopsy in Head and Neck Surgery

W. FRANKLIN KEIM, M.D., and WILLIAM G. BERNHARD, M.D. (by invitation), HAROLD GRUBIN, M.D. (by invitation), St. Barnabas Hospital, Newark, New Jersey

The exhibit consists of charts and ektachrome transparencies illustrating the correlation between aspiration biopsy and surgical material removed at a later date. There are also illustrations of the technique of aspiration biopsy. The material is taken from a series of over 106 cases.

Exhibit S-9

The Orbital Fascia

WALTER H. FINK, M.D., Minneapolis, Minnesota

The exhibit is divided into four parts:

Part 1: A study of the orbital fascia from the early embryonic period to maturity. It is based upon a series of dissections and drawings, each representing a different period of development.

Part 2: Gross Anatomy. (A) A series of dissections and drawings showing the arrangement of the orbital fascia and emphasizing the portions related to the globe and extrinsic muscles. (B) A series of sections and drawings of the orbit made in different planes, frontal, vertical, and horizontal, to show the fascial arrangement.

Part 3: Drawings showing various fascial anomalies, especially those related to the extrinsic muscles.

Part 4: Clinical problems related to the orbital fascia (physiology, inflammation, trauma, and anomalous development) are presented.

Exhibit S-10

Advancements in Diagnosis and Treatment of Nonotosclerotic Middle Ear Deafness

H. G. KOBRAK, M.D., Ph.D., GERALDINE PURCELL, M.S. (by invitation), and ED DOMEIER (by invitation), Wayne University College of Medicine, Detroit

The exhibit consists of three parts: (A) diagnostic improvements; (B) new examining methods and instruments; and (C) advancements in treatment. Part A presents enlarged kodachrome photographs of eardrums and accompanying audiograms. Differential diagnosis of various conduction lesions is explained. Part B demonstrates the instruments used for differential diagnosis: electronic acoustic probe (after Pohlman and Zoellner); instrument for quantitative Gelle test (after Thullen); optical setup for studying vibratory patterns on the living eardrum. Part C shows surgical and prosthetic methods and the audiometric results obtained by them.

Exhibit S-11

Management of Closed Angle Glaucoma

ADOLPH POSNER, M.D., Manhattan Eye, Ear and Throat Hospital, New York

The exhibit consists of colored biomicroscopic and gonioscopic paintings, as well as of working models of the anterior segment of the eye. The object of the exhibit is to demonstrate the mechanism of angle closure and to illustrate the factors in the prevention and cure of closed angle glaucoma.

Exhibit S-12

Rehabilitation Literature: Library Service of the National Society of Crippled Children and Adults

NATIONAL SOCIETY FOR CRIPPLED CHILDREN AND ADULTS, INC., Chicago, represented by Dean W. Roberts, M.D. (by invitation); Jayne Shover (by invitation); and Earl Graham (by invitation), Chicago

This exhibit will show how greater interest in the treatment and welfare of the handicapped has been reflected in the growing number of new publications. **Rehabilitation Literature,** the monthly abstracting indexing service of the Library of the Society, systematically reviews the professional and nontechnical literature. This service will be featured in the exhibit and will be explained by the Medical Librarian and other professional staff members who will be in attendance. Other services of the Library and Society which can be of help to the otolaryngologist and plastic surgeon will also be presented.

Exhibit S-13

The Problem of the Inarticulate Child

J. W. McLAURIN, M.D., and J. D. LAGUAITE, Ph.D. (by invitation), Tulane Speech and Hearing Center, Department of Otolaryngology, Tulane University Medical School, New Orleans

This exhibit states the problem of testing the child who does not talk; the information which it is necessary for the doctor to have; some of the testing procedures and equipment used with such children; and finally, recommendations for treatment.

Exhibit S-14

Recent Advances in Glaucoma Study

NATIONAL SOCIETY FOR THE PREVENTION OF BLINDNESS, represented by Willis S. Knighton, M.D., Chairman on Glaucoma; Franklin M. Foote, M.D., Executive Director (by invitation); and Virginia Smith Boyce, Assistant Director (by invitation), New York

The development of diagnostic procedures and methods of treating glaucoma during the past generation will be described and illustrated.

Exhibit S-15

Clinical Applications of Ocular Electrophysiology

JERRY HART JACOBSON, M.D., and ABRAHAM SCHLOSSMAN, M.D., New York Eye and Ear Infirmary, New York

The functional ability of the retina and the extraocular muscles can be analyzed by the techniques of electroretinography and electromyography. This exhibit presents the essential features of the physiologic background, the testing techniques and the apparatus for the tests, and it demonstrates present and projected clinical applications. Electroretinography provides completely objective information of diagnostic and prognostic significance in retinal disease, and also in those situations where opacities of the ocular media preclude ophthalmoscopic examination. Ocular electromyography has present and future applications of importance in the study of paralytic and concomitant strabismus.

Exhibit S-16

Glaucoma Research Project

THE OPHTHALMOLOGICAL FOUNDATION, INC., represented by Conrad Berens, M.D., New York; Charles P. Tolman, B.S., Kew Gardens, New York (by invitation); and Mortimer R. Cholst, M.D., Brooklyn

Education and research in glaucoma, comprising instructional text, lantern slides, and instruments for use by ophthalmologists acting as preceptors to general practitioners, or as professors of ophthalmology in medical schools. Currently, 405 ophthalmologists are cooperating as preceptors, and 33 Class A medical schools are now emphasizing recognition of glaucoma in undergraduate medicine. A report of research will be made on the relationship of uveitis and glaucoma, and upon a drug to replace belladonna, atropine, and hyoscine for use in pathological conditions in order to minimize the dilatory effect on the pupil. At least two new instruments to facilitate recognition of glaucoma will be exhibited.

Exhibit S-17

Visual Field Interpretation

DAVID O. HARRINGTON, M.D., University of California School of Medicine, San Francisco

An Atlas of Clinical Perimetry and Visual Field Interpretation in which the visual field defects are correlated with the pathologic lesions which produce them by means of a centrally placed anatomical drawing in each panel, surrounded by a series of visual field charts showing the defects which commonly occur in the visual fields as the result of nerve fiber interruption in this area of the visual pathway.

Panel I: The anatomy of the visual pathway in cut-away view and cross section.

Panel II: The isopters of the normal visual field projected onto the hill of vision.

Panel III: Visual field defects produced by lesions of the fundus oculi.

Panel IV: The nerve fiber pattern of the retina, and the perimetry of glaucoma.

Panel V: The toxic amblyopias.

Panel VI: The nerve fiber pattern of the optic nerve and the perimetry of optic nerve lesions.

Panel VII: The nerve fiber architecture of the chiasm and the visual field defects produced by pressure thereon.

Panel VIII: The localizing value of incongruity in visual field defects produced by lesions of the postchiasmal pathway.

Panel IX: The striate cortex in the calcarine fissure of the occipital lobe and the visual field defects produced by lesions thereof.

Exhibit S-18

Cellular Pathology in Diseases of the Ear, Nose and Throat

WILLIAM T. K. BRYAN, M.D., and MARIAN P. BRYAN, A.B. (by invitation), Washington University School of Medicine, Department of Otolaryngology, St. Louis

Many diseases have distinctive cellular patterns which can be used for diagnostic purposes. The exhibit consists of approximately sixty 5 × 7 kodachrome views taken at high magnification, showing cellular pathologic changes in the following diseases:

1. Inflammations
   a. "Common cold"
   b. Measles (nasal secretion)
   c. Herpes labialis
   d. Allergy
   e. Acute otitis media and mastoiditis
2. Malignant Tumors
   a. Carcinoma
   b. Lymphosarcoma
   c. Plasmacytoma
   d. Rhabdomyosarcoma
3. Benign Tumors
   a. Hyperkeratosis
   b. Papilloma

Exhibit S-19

National Eye-Bank (The Eye-Bank for Sight Restoration, Inc.)

THE EYE-BANK FOR SIGHT RESTORATION, INC., New York (by invitation)

A three-part visual demonstration, made up of graphic charts, photographs, material and equipment: (A) educational program; (B) organizational and operational chart; and (C) sight restoration program.

The object of the exhibit is to provide answers to some of the following questions:

How does the Eye-Bank operate?

How does the Eye-Bank cooperate with ophthalmologists throughout the country?

What is the scope of the National Eye-Bank?

What has been accomplished by the Eye-Bank?

How can qualified eye surgeons use the Eye-Bank's facilities?

What are the future plans of the National Eye-Bank?

Exhibit S-20

Precancerous and Cancerous Melanosis of the Conjunctiva

ALGERNON B. REESE, M.D., and BRADLEY R. STRAATSMA, M.D. (by invitation), Institute of Ophthalmology of the Presbyterian Hospital and Columbia University College of Physicians and Surgeons, New York

This exhibit illustrates the pathologic changes and clinical characteristics of precancerous and cancerous conjunctival melanosis. Specific consideration is given to the diagnosis and the variable clinical course of this condition as well as to the problems of treatment and differential diagnosis.

Exhibit S-21

Secretory Sialography in Health and Disease

IRVING M. BLATT, M.D., Ann Arbor, Michigan (by invitation); PHILIP RUBIN, M.D., Bethesda, Maryland (by invitation); JAMES H. MAXWELL, and JOHN E. MAGIELSKI, M.D., Ann Arbor, Michigan, representing the Departments of Otolaryngology and Radiology, University of Michigan Medical School, Ann Arbor, Michigan

A modification of sialography termed "secretory" or "physiological" sialography is presented. The important features of the technique include (a) the use of a polyethylene catheter, (b) a closed system of injection, and (c) physiological reflex stimulation of the salivary gland to evacuate the contrast material. Stimulants such as lemon juice or minted candy have been used to obtain a profuse salivary flow. This technique has been helpful in the study of inflammatory and

neoplastic diseases of the salivary glands. Examples of each disease category are shown with clinical, roentgengraphic and histologic data.

Exhibit S-22

Low Vision Aids

DAN M. GORDON, M. D., and CHARLES RITTER (by invitation), New York Hospital, Cornell Medical Center, New York

A display of the widest variety of magnification devices as well as some monocular aids for the blind.

Exhibit S-23

Dehydrated Preserved Corneas for Keratoplasty

OCULAR RESEARCH UNIT, WALTER REED ARMY MEDICAL CENTER, Washington, D. C., represented by John Harry King, Jr., M.D., Washington, D. C.; Jack W. Passmore, Lt. Col. (MC), U. S. Army, Denver (by invitation); and Joel N. McNair, Lt. Col. (MC), U. S. Army, Tacoma, Washington (by invitation)

The existing shortage of corneas available for keratoplasty is due to the inability of eye banks to preserve them. The authors have shown that corneas dehydrated in glycerine can be stored indefinitely **without refrigeration** and will offer results equal to fresh corneas in lamellar keratoplasty. This exhibit will portray in detail the method of preservation, the operative technique and the results in human cases. The following procedure is recommended for eye banks: (1) Fresh corneas, to be used within twenty-four hours, should be reserved for penetrating keratoplasty. (2) Corneas not employed within twenty-four hours should be dehydrated in glycerine and stored for lamellar keratoplasty.

Exhibit S-24

The Effect of Glaucoma Operations Upon Aqueous Dynamics

PETER C. KRONFELD, M.D., Chicago, and H. ISABELLE McGARRY, M.D., Evanston, Illinois, Illinois Eye and Ear Infirmary, University of Illinois College of Medicine, Chicago

Some of the newer methods for the study of aqueous dynamics were applied to glaucomatous human eyes before and after glaucoma operations. The facility of aqueous outflow and the flow rate of aqueous were correlated with clinical, biomicroscopic and gonioscopic findings.

Exhibit S-25

Hemilaryngectomy: A Technique for Cordal Carcinoma with Extension Posteriorly

MAX L. SOM, M.D., and LEON M. ARNOLD, M.D., Montefiore Hospital and Beth Israel Hospital, New York

The exhibit includes colored illustrations of the technique of hemilaryngectomy for cordal carcinomas with extension to the vocal process. In this procedure, half of the larynx, except for the cricoid, is removed en bloc and a flap of mucosa from the hypopharnx is preserved for relining the operative defect over a plastic mold. Colored photographs of the surgical specimens are demonstrated, and pictures of the postoperative appearance of the larynx are shown. The end results in 35 cases are tabulated, including a critical analysis of the failures and complications.

Exhibit S-26

Gonioscopy

HAROLD G. SCHEIE, M.D., WILLIAM C. FRAYER, M.D., JULIA LLOYD (by invitation), MARIE WILSON, (by invitation) and MARIE KERN (by invitation), Hospital of the University of Pennsylvania, Philadelphia

The gonioscopic appearance of the angle of the anterior chamber of normal and abnormal eyes is illustrated from artist's drawings. Normal variations are presented. The clinical value of gonioscopy in daily ophthalmologic practice is illustrated in the diagnosis of foreign bodies of the anterior chamber, in the study of tumors of the iris and ciliary body, and in the classification and management of glaucoma including primary, congenital, and secondary types.

TECHNICAL EXHIBITORS — 1956

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Alcon Laboratories, Inc.	56 and 57
The Alkalol Company	29
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Mager & Gougelman, Inc.	20 and half of 19
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TECHNICAL EXHIBITS

The Academy is appreciative of the cooperation of all technical exhibitors.

Booths with numbers preceded by "R" are located in the Red Lacquer Room.

Alcon Laboratories, Inc., Fort Worth, Texas — Booths 56 and 57

Twenty-seven Drop-tainer Sterile Buffered Ophthalmic preparations including miotics, mydriatics, anesthetics, astringents, hormones, nongreasy lubricants (methyl cellulose), and Fluorescein will be exhibited.

Alcon's Sterile Ophthalmic preparations containing methyl cellulose are identified by the prefix "Isopto."

Isopto Cortisone and Isopto Hydrocortisone, both in 0.5% and 2.5% concentrations, will be featured in a new 5 cc. Drop-tainer.

Alcon-efrin 25, a nasal decongestant, in the new 30 cc. fluid-content spray package will be displayed, along with the three strengths supplied in one-ounce dropper bottles.

The Alkalol Company, Taunton, Mass. — Booth 29

The Alkalol Company is featuring Alkalol, a solution especially designed for the treatment of the mucous membranes of the nose and throat.

First compounded in 1896, its balanced formula of salts and essential oils makes a solution that is effective and at the same time nontoxic, mild and pleasant. It is alkaline and a mucus solvent.

Alkalol is an excellent vehicle for many drugs. For further information please call at Booth 29.

American Cystoscope Makers, Inc., New York, N. Y. — Booths 87 & 88a

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American Optical Company, Southbridge, Mass. — Booths 7 through 14

The American Tobacco Company, Research Laboratory, Richmond, Va. — Booths R-17 & R-18

A new smoking machine simplified in design and construction by the utilization of readily available components will be demonstrated. This instrument simulates human smoking and makes possible a reproducible collection of smoke for analysis. Basic research in this field has led to scientific selection of tobaccos and control of quality in LUCKY STRIKE, PALL MALL and TAREYTON cigarettes.

The exhibit will also include samples of the four main types of tobaccos used in the modern American cigarette, and technical literature will be available for distribution.

Armco Mercantile Co., Chicago — Booth R-23

ARMCO MERCANTILE COMPANY exhibits the Magnocular, a telescopic magnifying spectacle.

The standard models, which have been exhibited for several years at the Academy meetings, feature a large flat field and an unusually long focal distance, with sharpness of detail. In addition, doctors will be shown a special SURGEON'S MODEL. This is designed to give 30 per cent magnification at a focal distance of 20 inches for an eye without refractive error. As always, doctors are invited to try the various models in order to determine their own amplitude and subjective reaction to the Loupe.

The fine German OCULUS Universal Trial Frame will be shown. ARMCO is sole authorized supplier of parts in the United States.

Armorlite Lens Company, Pasadena, Calif. — Booth R-47

The Armorlite Lens Company, developers of hard resin optics, will exhibit specimens of the first durable, light-weight, safe lenses.

These will include examples of featherweight bifocals for aphakia; the safest of all lenses for children, athletes and industrial workers; and ultraviolet-absorbing hard resin lenses, which are more transparent than glass to all light useful in seeing, yet completely absorb all ultraviolet wave lengths.

Art-Craft Optical Company, Inc., Rochester, N. Y. Booth R-32

Artificial Human Eyes Booth R-46

Joint exhibitors in this booth are E. & S. Danz and Fried & Kohler, New York; Greiner & Mueller, Chicago; Hugo Leipold, Pittsburgh; G. Danz & Sons, San Francisco; and Earle C. Schreiber, Inc., Newark, N. J.

This exhibit of artificial human eyes will include graphic descriptions and case histories of five unusual prosthetic cases in which we were able to cooperate with the ophthalmologist.

We shall feature new implants and the troubles encountered by use of too large an implant. We shall also show causes of frequent "unsolvable" irritations from ocular protheses.

Audivox, Inc., Boston Booth 42

Audivox, successor to Western Electric Hearing Aid Division, displays latest Pure Tone Diagnostic and Screening Audiometers. The display also will show the complete line of Audivox hearing aids, including the newest subminiature and eyeglass aids. This display is a "must see" for every otologist.

Aurex Corporation, Chicago Booth R-20

Barnett Optical Laboratories, Chicago Booth 37

Bausch & Lomb Optical Co., Rochester, N. Y. Booths 93 through 100

Featured in the display of the complete line of Bausch & Lomb ophthalmic and diagnostic instruments will be the new Deluxe Refracting Unit with Motor Chair and the new Slit Lamp. The application of the Ortho-Rater tests for school children and automobile drivers will be demonstrated. The Harmony Frame Bar, shown for the first time, will display new frame styles and color treatments. The Panoptik Cataract Lenses and the Panoptik Functional Trifocals are among the Bausch & Lomb ophthalmic lenses to be shown.

Austin Belgard, Inc., Chicago Booths 18 & half of 19

We welcome you to our booths to visit with us and discuss your prescription problems and to view our new styles of frames and mountings, as well as to see the latest in refracting adjuncts.

This year we are specializing in "C/2 and J1-ac." Come in and ask about them.

Beltone Hearing Aid Co., Chicago Booth R-9

Benson Optical Company, Minneapolis Booths 84 & 85

Complete complement of frames for men, women and children, custom-design and import included, and color combinations obtained through new Colorfuse procedure. Complete Style-Room and Dispensing Room furniture and equipment. Samples of complicated lens Rx's. Complete Catarex lens service set.

The Blakiston Division, McGraw-Hill Book Co., New York Booth 60

Featured at the Blakiston-McGraw-Hill booth will be Dr. R. Townley Paton's book KERATOPLASTY, a thorough and exactly illustrated volume that covers both techniques and data in the whole field with a comprehensive discussion of Eye-Banks throughout the world. In the book are the keratoplastic techniques which Dr. Paton has found most practicable and effective; with some of the major findings, views, and recommended procedures in the literature correlated or presented in antithesis. In addition to operative technique, the book covers thoroughly other aspects of keratoplasty: operative and postoperative care; the

availability of donor tissue throughout the world; techniques for selecting and preserving donor tissues; analysis of recent findings on case selection; recent findings on the healing processes. Included in the book are 29 superb kodachrome color plates and 74 black and white photographs and surgical drawings.

Boll and Lewis Optical Co., Chicago
Booth 41

Broemmel Pharmaceuticals, San Francisco **Booth R-7**

You are again cordially invited to visit the exhibit of fine pharmaceutical products manufactured by Broemmel.

Featured this year will be CORTOMIXIN, a sterile ear drop solution containing polymyxin B sulfate and hydrocortisone, also OP-HYDRIN, our new ophthalmic suspension of hydrocortisone with phenylephrine hydrochloride.

We look forward to having you stop by to receive your office sample of the above described new products as well as your personal sample of Isophrin.

Burroughs Wellcome & Co. (USA), Inc., Tuckahoe, N. Y. **Booth 117**

NEW PRODUCTS

The extensive research facilities of "B. W. & Co." both here and in other countries are directed to the development of improved therapeutic agents and techniques. Much basic theoretical work in our laboratories, and in cooperation with internationally known institutions, is contributing to the reservoir of fundamental medical knowledge.

Through such research, "B. W. & Co." has made notable advances related to leukemia, malaria, diabetes, and diseases of the autonomic nervous system; and to antibiotic, muscle-relaxant, antihistaminic, and antinauseant drugs.

An informed staff at our booth will welcome the opportunity to discuss our products and latest developments with you.

Cameron Surgical Specialty Co., Chicago
Booth 74

See the Anthony-Fisher Suction Coagulating Handle and Electrodes for nasal hemorrhage; Cauteradios and Cauterodynes for ocular, aural, nasal and oral electrosurgery, electrocoagulation, including cyclodiathermy electrodes; the Boros Flexible Esophagoscope and Flexible Gastroscopes; electrodiagnostic lamps and instrument sets; new and improved mirror-type headlites; binocular spectacle loupes; and other specialties for ophthalmology and otolaryngology.

Carroll Dunham Smith Pharmacal Co., New Brunswick, N. J. **Booth R-22**

Chesebrough-Ponds Inc., New York
Booth R-25

Clersite Company, Chicago **Booth C**

The Coca-Cola Company, Atlanta
Booth 26

Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Co., of Chicago, Inc., and the Coca-Cola Company.

Codman & Shurtleff, Inc., Boston
Booths R-41 & R-42

Codman and Shurtleff, Inc., makers of fine surgeon's instruments since 1838, will exhibit their line of fine eye instruments, a complete line of instruments for bronchoesophagology, and other accessory items.

The ear, nose and throat field will be represented by many standard and new items.

Contact Lens Society of America, Raleigh, N. C. **Booth R-28**

We invite you to learn what the Contact Lens Society of America is, and how it can serve you and your patients. Many types of contact lenses will be on exhibit. We hope to have an opportunity to explain why most of your patients can now wear contact lenses. Trained and experienced technicians who are members of the Society will be in attendance at all times.

Coreco Research Corporation, New York
Booth 59

The Coreco Camera is designed to photograph all surface areas of the body, from 1 x 1 close-up pictures to half body size, and all cavities of the human body, such as mouth, throat, ear, nose, vagina, and rectum. The camera carries its own specially developed, fully color-corrected bulb and a mechanism for complete control of its color temperature and exposure within the camera itself. There is an automatic view finder synchronized with the automatic camera mechanism to permit viewing until a fraction of a second before exposure. The camera provides for automatic focusing.

Curry & Paxton, Inc., New York
Booths R-44 & R-45

A wide selection of the finest ophthalmic and orthoptic apparatus manufactured in England, including the latest models of projection perimeters, amblyoscopes, ophthalmoscopes, and retinoscopes, will be shown—some for the first time outside of Great Britain.

A large assortment of the newest slides, the newest developments in student and standard trial cases expressly made for the United States, and a number of brand new or redesigned orthoptic devices will also be shown.

Davis & Geck, Inc., Danbury, Conn.
Booth R-16

Davis & Geck, Inc., producers of the most extensive line of fine needled sutures available, will be featuring three new suture-needle combinations developed during the past two years as a result of Academy studies. These new products combine Davis & Geck's fine gauge and superior quality suture material with highest grade steel Atraumatic needles. Be sure to ask the Davis & Geck representative for special demonstrations of these new products.

The DeVilbiss Company, Somerset, Pa.
Booth 16

The DeVilbiss Company of Somerset welcomes you to its exhibit of professional and prescription types of Atomizers, Nebulizers and Steam Vaporizers.

The Portable Air Compressor, No. 501, has become the selected equipment for intermittent as well as prolonged detergent and "cold mist" aerosol therapy when used with the DeVilbiss No. 841 Continuous-Flow Nebulizers. It displaces 12 liters of oil-free air per minute and produces up to 30 pounds of positive pressure per square inch. The No. 501 is especially suitable for use with all types of Aerosol equipment in individual treatment rooms.

Doho Chemical Corporation, New York
Booth 34

Doho Chemical Corporation is pleased to exhibit AURALGAN, the ear medication for the relief of pain in otitis media and removal of cerumen; RHINALGAN, the nasal decongestant which is free from systemic or circulatory effect and equally safe to use on infants and elderly people; and the NEW OTOSMOSAN, the effective, nontoxic ear medication which is fungicidal and bactericidal (Gram negative-Gram positive) in suppuration and aural dermatomycoses.

Mallon Chemical Corporation, a subsidiary of the Doho Chemical Corporation, will exhibit RECTALGAN, the liquid topical anesthesia, recommended for relief of pain and discomfiture in hemorrhoids. pruritus and perineal suturing; and DERMOPLAST, in an aerosol freon propellent spray for fast relief of surface pain, itching, burns and abrasions.

Edwards Optical Company, Chicago
Booth R-30

Encyclopaedia Britannica, Chicago
Booth 6

Encyclopedia Americana, Grand Rapids, Mich. **Booth 92**

Etchicon Suture Laboratories, New Brunswick, N. J. **Booth 62**

Ethicon CP Surgical Gut, Tru-Permanized Silk and other textile sutures; Ethicon Atraloc Eyeless Needle Sutures; Bio-Sorb Absorbable Dusting Powder; Gamophen Antiseptic Surgical Soap; Tantalum

Gauze and other tantalum surgical materials, SUTUPAK—pre-cut sterile surgical silk and cotton sutures; surgical steel sutures and gauze; Surgiset and Pocket Surgiset, suture assortments; LIGAPAK—spiral wound sutures; new OPHTHALMIC sutures.

Grason-Stadler Company, West Concord, Mass. Booth R-36

The Audiometer Division of the Grason-Stadler Company will exhibit and demonstrate a new Automatic Audiometer, based on developments by Bekesy. Physicians are cordially invited to visit our booth and trace their own audiograms on the instrument. Competent technical personnel will be in attendance to discuss some of the unique features of Automatic Audiometry.

Other instruments on exhibit will include a Psycho-Galvanometer, a device used for audiometry on uncooperative subjects.

Speech Audiometers and Auditory Training Units of latest design will also be shown.

Grieshaber Swiss Eye Instruments, Chicago Booth 38

New instrumentation is the watchword for our display of the WORLD'S FINEST OPHTHALMIC INSTRUMENTS, made by Grieshaber.

As exclusive GRIESHABER distributor in the United States we offer only those genuine and exclusive patterns of Ophthalmic instruments designed by leading Ophthalmic surgeons and faithfully reproduced to their most exacting and perfected specifications.

New, delicately patterned Anatomical Iris Forceps without teeth; new fine needle holders designed by Schepens, so necessary for use with new, finer, stainless-steel corneal needles by Castroviejo and Barraquer, will be on display.

Grieshaber cutting instruments of STAINLESS STEEL are designed to improve the Surgeon's technique and enhance the patient's recovery.

Grune & Stratton, Inc., New York Booth 35

Mr. Frank Kurzer will be happy to see you at our booth, where he will show you such new books as Fischer's 2nd Revised Edition of THE LABYRINTH; Veir's THE LACRIMAL SYSTEM; Gettes' REFRACTION; Krimsky's CHILDRENS' EYE PROBLEMS; Kestenbaum's 2nd Revised Edition of CLINICAL METHODS OF NEURO-OPHTHALMOLOGIC EXAMINATION; Snapper's MEDITATIONS ON MEDICINE AND MEDICAL EDUCATION; A.M.A. SCIENTIFIC EXHIBITS; and well-known standard works such as Wiener and Scheie's SURGERY OF THE EYE; and Fox's OPHTHALMIC PLASTIC SURGERY.

Guild of Prescription Opticians of America, Inc., New York Booths 43 & 44

Harlequin Corporation, New York Booth 47

Paul B. Hoeber, Inc., New York Booth 32

Paul B. Hoeber, Inc., Medical Book Department of Harper & Brothers, exhibits some of the most outstanding and best-known works in the fields of ophthalmology and otolaryngology. Examples are Sorsby's Modern Trends in OPHTHALMOLOGY, 3rd Series; Reese's TUMORS OF THE EYE; Samuels' and Fuchs's CLINICAL PATHOLOGY OF THE EYE; Berliner's BIOMICROSCOPY OF THE EYE—2 volumes; Ellis' Modern Trends in DISEASES OF THE EAR, NOSE AND THROAT; and Palmer's ESOPHAGUS AND ITS DISEASES. In addition, many new books published the past year, including Hollinshead's ANATOMY FOR SURGEONS, volume 2; Hayes Martin's CANCER SURGERY OF THE HEAD AND NECK, and many others will be on display.

Hollister-Stier Laboratories, Philadelphia
Booth 46

Hollister-Stier Laboratories are devoted exclusively to research in and the preparation of allergenic materials. They have conferred with the American Society of Ophthalmologic and Otolaryngologic Allergy in making available a complete correlated service, including authoritative information—time-saving aids —clinical and laboratory procedures, and effective techniques. Special file-sized folios on POLLENS, PROTEINS, MOLDS, and DUST, including information for distribution to patients, are available on request.

Representatives will gladly discuss the various test sets for diagnosis and therapeutic extracts, including "type 33" molds. Many accessories for office and treatment rooms will be demonstrated including stain, racks, histamine kits, T.O.E. and dust kits.

ALLERGY is important in the practice of Ophthalmology and Otolaryngology, and Hollister-Stier Laboratories have available an effective method of diagnosis and the necessary antigens for sucessful therapy.

Your visit will be most welcome.

The House of Vision, Inc., Chicago
Booths 63 through 66

The House of Vision will exhibit a new line of foreign and domestic ophthalmic instruments—a new gonioscopy microscope, a new trial frame, a new trial lens cabinet.

The complete Haag-Streit line of precision instruments will be displayed: Goldmann Slit Lamp, Goldmann Perimeter, Goldmann-Weekers Adaptometer, Pflueger Perimeter, Aplanation Tonometer, and others.

Zeiss equipment, including Zeiss-Oberkochen Slit Lamp and Zeiss Refractionometer, will also be shown.

There will be an interesting display of the latest frame styles and unusual lens grinding.

The House of Vision will introduce a new scratch-resistant plastic ophthalmic lens.

Industrial Acoustics, New York
Booth R-37

The International Correspondence Society of Ophthalmologists and Otolaryngologists, New Orleans Booth R-2

The function of the Correspondence Society is to publish the COLLECTED LETTERS of its membership spread throughout the world. Any member may submit a question; a segment of the membership is polled, and the opinions received are published twice monthly in the COLLECTED LETTERS. Different men are polled on each new question, care being taken to include some authorities in the poll; thus the subscribers obtain a broad sweep of views on each question that arises. The current series of the COLLECTED LETTERS will be available for inspection, and subscription applications for the 1957 series will be accepted.

Ion Optical Company, Detroit
Booths R-11 & R-12

The Iso-Sol Company, Inc., Brooklyn
Booth R-43

Fritz Jardon Prosthetic Laboratories, Detroit Booth R-6

The exhibit will demonstrate a good Artificial-Eye-fitting program for those men who practice in those parts of the country where eye-fitting for their patients is not available.

Pressure conformers designed and developed by the Jardon Laboratories, which won acclaim from the leading eye surgeons here and abroad for their use in reconstructing eyesockets, will be exhibited.

A variety of implants, tried and tested, with excellent end-results; contact lenses of the latest design; eye instruments designed and manufactured by one of the best instrument makers from Stuttgart, Germany, will also be shown.

Jenkel-Davidson Optical Company, San Francisco Booths 103 & 105

Keeler Optical Products, Inc., Philadelphia Booths 90 & 91a

Keystone View Company, Meadville, Pa. Booths 23 & 24

A complete line of orthoptic testing and training equipment will be on display. Of special interest will be the new Orthoscope, a new Binocular Testing instrument for checking binocular functioning, aniseikonia and stereopsis. The Colordepth Strabismus Technique will be demonstrated. The Keystone Prescription Services for Home Training will also be displayed. Competent representatives will be available to demonstrate instruments and materials.

Kono Manufacturing Co., Woodside, L. I., N. Y. Booth 106

Lea & Febiger, Philadelphia Booth 51

Be sure to see Lea & Febiger's recent books: Cushman—STRABISMUS; Town —OPHTHALMOLOGY; Ballenger — A MANUAL OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY; Ballenger—DISEASES OF THE NOSE, THROAT AND EAR; Krimsky—BINOCULAR IMBALANCE; Spaeth — OPTHALMIC SURGERY; Cowan—REFRACTION OF THE EYE; Gifford—OCULAR THERAPEUTICS; Wohl and Goodhart—MODERN NUTRITION IN HEALTH AND DISEASE; Bonica — THE MANAGEMENT OF PAIN. These and many titles in related fields have been selected because of their interest to members of the American Academy of Ophthalmology and Otolaryngology.

Lederle Laboratories Division American Cyanamid Company, Pearl River, N. Y. Booth R-10

Liberty Optical Manufacturing Co., Newark, N. J. Booth 114

The introduction of several completely new creations in eyeglass frames is scheduled by Liberty Optical Mfg. Co., for its exhibit. Our new creation, "the LIBBY," will be shown in Aluminum Anodized trims, and also in new all-zyl colors.

You will see, among others, the original and ever popular Broker and our 320 Par Keyhole frame.

J. B. Lippincott Company, Philadelphia Booth 49

J. B. Lippincott Company presents, for your approval, a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

Mager & Gougelman, Inc., Chicago Booths 20 & half of 19

Mager & Gougelman, Inc., offer a complete service in artificial eyes and facial restorations. Our skilled glass and plastic eyemakers are heirs to our 105 years of experience. We have offices in many principal cities, and visit other localities regularly for the fitting of artificial eyes.

We provide extensive mail order service for doctors who must do their own fittings. FREE COLOR CHART AND SIZE GUIDE is available at our booth, where you are invited to see our implants, artificial eyes and facial restorations.

We shall welcome the opportunity of discussing with you any problems you may have regarding artificial eyes.

The Maico Company, Inc., Minneapolis Booth 67 & 68

S. E. Massengill Company, Bristol, Tenn. Booth R-8

McLeod Optical Co., Inc., Providence, R. I.
Booth R-48

In cases of poor vision, a Monocular Magnifier mounted in a spectacle frame can be of great assistance for reading, as has been recently pointed out by Lederer. McLeod Optical have now extended their range of aspheric magnifiers, some of which were already in use in this manner, to include a set of three lenses specifically designed for this purpose.

The performance of these lenses is markedly better than can be attained with spherical forms. Their design provides a flat, wide and relatively undistorted field of view at magnification of 4×, 6×, or 8× without undue sensitivity to errors of lens positioning.

The lenses are made in solid lenticular form with apertures of 40 mm. for the 4×, 36 mm. for the 6× and 34 mm. for the 8×.

Medical Case History Bureau, New York
Booth D

Simplifying the Doctor's History Record and Bookkeeping System with the INFO-DEX RECORD CONTROL SYSTEM.

Maintenance of accurate, informative data on both history and financial records is essential in the modern doctor's practice. The INFO-DEX Record Control System helps to keep a constant finger on the physical and financial status of the patient. This system correlates information almost automatically for instant reference and research work. The method of cross-indexing interesting cases according to the disease is unique and exclusive.

The MEDICAL CASE HISTORY BUREAU of New York City has specialized for many years in record forms for the doctor's office. Its well-informed representative will gladly demonstrate the Info-Dex System and discuss your office problems.

Medical Dental Photo Co., Levittown, N. Y.
Booth 50A

Featuring complete line of Photographic Equipment, including new low-priced setup for Stereo Pictures. Also introducing for the first time in America the "Retinograph Electronic Camera."

Medical Film Guild, Ltd., New York
Booth L-L

E. B. Meyrowitz Surgical Instruments Co., Inc., New York **Booths 79 & 80**

Miller Surgical Company, Chicago
Booth 91b

See the Miller Electro-Scalpel with Snares, Suction-Coagulation attachments, and other special accessories for eye, ear, nose and throat procedures. This cutting, coagulating and desiccating unit, with or without spark gap, is calibrated to do the most delicate work as well as light major surgery of the eye, ear, nose and throat. There will also be on display illuminated otoscopes, eyespud with magnet, ophthalmoscope, transilluminating lamps, Lempert-type Headlite, and other specialties.

Modern Optics, Inc., Houston, Texas
Booths 115 & 116

The C. V. Mosby Company, St. Louis
Booth 86

The C. V. Mosby Company will exhibit its complete line of medical publications. Items that will be particularly stressed will be those of special interest to ophthalmologists and otolaryngologists. Visitors are cordially invited to browse through the books at this exhibit.

V. Mueller & Company, Chicago
Booths 1 through 5

Fine instruments for every type of surgical procedure in treatment of the eye,

ear, nose and throat will be included in the comprehensive display of V. Mueller & Company. The special instruments for fenestration, stapes mobilization, skin planing and other plastic surgery will be featured, as will a broad selection of bronchoscopic instruments and equipment for leverage laryngoscopy. An interesting exhibit of new equipment will be included, too: fenestration microscopes, bone surgery engines, and a full line of Mueller ether and vacuum equipment will be demonstrated, as will other aids to the modern surgeon.

Mueller Welt Contact Lenses, Inc., Chicago **Booths R-39 & R-40**

The new Mueller Welt Abrasion Free Micro Lens, as well as the Fluidless Scleral Contact Lens, will be featured at our exhibit.

The micro lens, invented three years ago and now worn by over one-half million patients, has proved successful in comfort for eight or more hours of wearing time daily. Most attractive to the doctor is the simplicity of fitting. Only two variables are considered: (1) the diameter of the lens, and (2) the ophthalmometer reading. The laboratory will do the balance of all figuring (aside from your refraction).

Demonstrations on fitting will be given twice daily.

Nepera Chemical Co., Inc., Yonkers, N. Y. **Booth R-5**

The Nepera exhibit features Biomydrin Nasal Spray, for effective mucolytic-penetrating antibacterial activity, prolonged nasal decongestion and antiallergic effect. Biomydrin F adds Hydrocortisone Alcohol to the Biomydrin Nasal solution formula, and is anti-inflammatory, antiallergic, mucolytic-penetrating, antibacterial and decongestant. Biomydrin Otic is effective in the treatment of both otitis media and otitis externa; it is antibacterial, antiallergic, anti-inflammatory and penetrating. Choledyl, a new drug, has been highly effective in the treatment of bronchial asthma, bronchospasm and congestive heart failure. Choledyl assures high oral theophylline blood levels, with minimal side reactions; it rarely produces fastness. Urosulfin, a new product, is a combination of a well-known soluble sulfonamide, for antibacterial effect, and a widely used azo dye, for rapid symptomatic relief of pain, burning and frequency, in the treatment of urinary infections. Mandelamine, a urinary antiseptic, will also be featured.

New Era Optical Company, Chicago **Booths R-3 & R-4**

New Jersey Optical Company, Irvington, N. J. **Booth 48**

Obrig Laboratories, Inc., New York **Booth 108**

Ophthalmos, Inc., Union City, N. J. **Booth R-18**

The Opticase Company, Newark, N. J. **Booth 15**

Paravox, Inc., Cleveland **Booth R-29**

The new PARAVOX I-GLAS hearing aid will be exhibited in the many colors and frame styles now available. There will be demonstration of binaural and directional hearing possibilities with this 3-transistor hearing aid built into one or two eyeglass temples. Receiver interchangeability for "on the spot" fitting will be shown, and easy use of the telephone at ear level will be demonstrated. Literature will be available, explaining elimination of clothing-rub noise and other advantages of "on the head" hearing with the PARAVOX I-GLAS hearing aid.

Pfizer Laboratories, Brooklyn Booth 107

Please visit the Pfizer exhibit for the latest information on the systemic and topical dosage forms of TERRAMYCIN and TETRACYN, tested and proved in infections of the eye, ear, nose and throat. Also featured will be Pfizer's brand of hydrocortisone, Cortril, and the combined Cortril-Terramycin ointments to control both inflammation and infection encountered in ophthalmology and otolaryngology. Of interest to the nose and throat specialist will be Tyzine, the new nasal decongestant, and Toclase, for the suppression and relief of cough.

George P. Pilling & Son Company, Philadelphia Booths 75, 76, 77

The Pilling Company will have their usual interesting exhibit in their regular location. We will have on display an excellent line of eye, ear, nose and throat instruments and instruments for bronchoesophagology. In each field we will have some very interesting new items for display. The interested physician should allot sufficient time to investigate some of the latest important developments in the field of bronchoesophagology. Henry N. Pilling, George H. Haines, Raymond Kolva, and George S. Weigand, our usual representatives, will be present to talk with you.

The Plastic Contact Lens Company, Chicago Booth R-1

The Plastic Contact Lens Company exhibit will consist of a display of the Wesley-Jessen Minimum-Clearance Microlens and its application in normal fittings as well as in keratoconus, irregular cornea, high astigmatism, and nystagmus.

We will also display the Wesley-Jessen Lenticular Microlens as used in aphakia fitting or in any cases requiring a prescription of over a plus or minus 10.00 diopters.

Scleral or corneal cover lenses, as used in cosmetic fittings to cover a blind or unsightly eye, will also be displayed.

Alfred P. Poll, New York Booth 61

Precision-Cosmet Company, Inc., Minneapolis Booth B

W. F. Prior Company, Inc., Hagerstown, Md. Booth 104

OTOLARYNGOLOGY IN FIVE LOOSE-LEAF VOLUMES AND DESK INDEX

For over twenty years otolaryngologists familiar with the Internationally famous Prior loose-leaf publications: Tice's Practice of Medicine; Lewis' Practice of Surgery; Brennemann's Practice of Pediatrics, and Davis' Gynecology and Obstetrics, have been insistently demanding that their specialty receive similar recognition by the issuance of a loose-leaf Otolaryngology.

The existence of the pressing need for a comprehensive reference work in this specialty and the fact that Otolaryngology represented a vastly expanding specialty were the deciding factors in our allocating a very large amount of money for the production of these volumes.

These volumes cover the entire field of Otolaryngology. As is the case with all Prior publications, this loose-leaf Otolaryngology is profusely illustrated. These illustrations have been carefully chosen to enhance and clarify the text. There are, in all, 2,900 line cuts, halftones and magnificent color plates.

It is the first complete library of Otolaryngology. Already subscribers have received many revisions of the text, with a vast number now in the course of preparation.

Professional Pharmacal Company, Inc., San Antonio, Texas Booth R-33

The Professional Pharmacal Company will display its complete line of 22 Bufopto sterile ophthalmic solutions. These superb solutions will be featured in the NEW All-Plastic "Visual" package that permits inspection of the contents of the package at all times.

Our special representatives will be on hand to answer any questions concerning these products.

The Professional Press, Inc., Chicago
Booth 50

The Eye, Ear, Nose and Throat Monthly is now in its thirty-fifth year of publication. It is a practical journal whose aim is to present material of interest and value to the ophthalmologist and otolaryngologist. Sample copies will be available. The Red Book, the directory of eye, ear, nose and throat specialists, will also be on display.

Radium Chemical Company, Inc., New York
Booth 30

Radium Chemical Company, Inc., will display the Monel metal radium nasopharyngeal applicator, used for the treatment of hyperplastic lymphoid tissue at the orifice of the eustachian tube and the fossa of Rosenmueller. A complete line of instruments for the application of radon will also be shown.

Remler Company, San Francisco
Booth R-35

R. J. Reynolds Tobacco Company, Winston-Salem, N. C. **Booths 27 & 28**

Welcome to the R. J. Reynolds Tobacco Company Exhibit! You are cordially invited to receive a cigarette case (monogrammed with your initials) containing your choice of CAMEL, CAVALIER King Size, or WINSTON, the distinctive new king size, filter cigarette.

Ritter Company, Inc., Rochester, New York **Booths 69, 70, 71**

Sandoz Pharmaceuticals, Hanover, N. J.
Booth R-26

Sandoz Pharmaceuticals cordially invites you to visit their display.

CAFERGOT: Available in oral and rectal form for effective control of head pain in migraine and other vascular headaches. FIORINAL: A new approach to therapy of tension headaches and other head pain due to sinusitis and myalgia. BELERGAL: Valuable as an autonomic inhibitor in a variety of functional ills; the volume of favorable clinical reports is constantly increasing.

Our representatives will gladly answer questions about these and other Sandoz products.

Schering Corporation, Bloomfield, N. J.
Booth 33

The entire Schering exhibit will be devoted to the use of the Meti-steroids—METIMYD (corticoid-antibacterial combination), METICORTEN and METICORTELONE—in topical and systemic therapy of allergic and inflammatory diseases of the eye. Extensive advantages of these new steroids over cortisone and hydrocortisone will be presented.

Schieffelin & Company, New York
Booth R-19

Schieffelin & Company will exhibit their cycloplegic-mydriatic compound, CYCLOGYL HYDROCHLORIDE. New developments in research of ophthalmic preparations will be discussed by our representatives. Samples and literature on important ophthalmic preparations will be available.

Robert B. Scott, Inc., Chicago
Booth R-34

The Robert B. Scott exhibit will include (1) display of before and after results on ocular prostheses, cosmetic contact shells and facial restoration; (2) display of retinal and anterior segment slides from our collection.

Sharp & Dohme (Division of Merck & Co., Inc.) Philadelphia Booth 118

The Sharp & Dohme exhibit presents CO-DELTRA and CO-HYDELTRA, specifically designed to provide all the benefits of prednisone and prednisolone plus positive antacid action to minimize gastric distress. Related adrenal cortical steroid preparations in endocrine disorders, collagen diseases, respiratory allergies, eye diseases and skin conditions are also highlighted. Expertly trained personnel will be pleased to discuss new dosage forms, new indications, and the latest summaries of advanced clinical reports in this field.

Shuron Optical Company, Inc., Geneva, N. Y. Booths 81 & 82

Featured in the Shuron display of Quality Beyond Question ophthalmic materials will be 'Artte Chest mountings of 10K hand-carved gold, gorgeously colored frames, mountings of high purity anodized aluminum, and other new plain and trimmed styles.

Spectacle cases of unusual design will be shown, and the largest corrected curve prescription lenses in the trade will be on display.

Smith, Kline & French Laboratories, Philadelphia Booth 45

Sonotone Corporation, Elmsford, N. Y. Booth 78

E. R. Squibb & Sons, New York Booth R-38

E. R. Squibb & Sons has long been a leader in development of new therapeutic agents for prevention and treatment of disease. The results of our diligent research on new products or improvements on products already marketed are available to the medical profession.

We are pleased to present up-to-date information on these advances for your consideration.

Storck Pharmaceuticals, St. Louis Booth R-27

PENTERGOT: Rectal insert or tablet; is 90 per cent effective in aborting migraine, tension, vascular or histaminic cephalalgia attack.

METALEX: Combines pentylene tetrazol and nicotinic acid for the effective therapy of aural and visual defects due to cerebral arteriosclerosis and atherosclerosis. Retinal arteriosclerosis may be effectively treated with this combination, which is available in tablets and elixir. Most senile or presenile symptoms can be diminished with short-term treatment.

Storz Instrument Company, St. Louis Booths 109 through 112

Surgical Mechanical Research, Inc., Los Angeles Booths 88b and 89

The Thermosector Company, Oak Park, Ill. Booth 81

The Thermosector, an electrosurgical unit expressly designed for eye, ear, nose and throat techniques in office and hospital, will be exhibited and demonstrated. You are invited to investigate the superior features of this device, which is preferred by leading hospitals, clinics and professional men.

Charles C Thomas, Publisher, Springfield, Ill. Booth R-49

Titmus Optical Company, Inc., Petersburg, Va. Booth 55

Uhlemann Optical Company, Chicago Booths 52, 53, 54

The Univis Lens Company, Dayton, Ohio Booths 39 & 40

Victory Optical Mfg. Co., Newark, N. J. Booths 101 & 102

The Vision-Ease Corporation, St. Cloud, Minn. Booth R-24

Dr. Max M. von Stirne, Philadelphia Booth R-21

Walton Laboratories, Inc., Irvington, N. J. Booth R-14

Ward Optical Mfg. Corp., North Arlington, N. J. Booth 83

Welch Allyn, Inc., Skaneateles Falls, N. Y. Booth 17

White Laboratories, Inc., Kenilworth, N. J. Booth R-31

Stimulate appetite—improve muscle tone—speed convalescence through a more efficient utilization of protein. "Correct proportion of amino acids to each other in the diet is more important than total protein intake." White's L-lysine preparations—LACTOFORT, CEROFORT TABLETS and CEROFORT ELIXIR—raise milk, cereal and vegetable proteins to high values.

White's representatives will also be glad to discuss OTOBIOTIC, OTODYNE, OTOMIDE and the reformulated DU-BIOTIC INTRANASAL SOLUTION and TROCHES, together with other White specialties of interest.

The White-Haines Optical Co., Columbus, Ohio Booths 21 & 22

The Williams & Wilkins Company, Baltimore Booth 36

The Williams & Wilkins Company is exhibiting the new book on ENDOGENOUS UVEITIS by Alan C. Woods, M.D., and the much expanded new second edition of CLINICAL NEURO-OPHTHALMOLOGY by Frank B. Walsh, M.D. Also on display are sample copies of the unique new journel, SURVEY OF OPHTHALMOLOGY. The recent British masterpiece, FRACTURES OF THE FACIAL SKELETON, by N. L. Rowe, F.D.S.R.C.S., and H. C. Killey, F.D.S.R.C.S., is also included in the exhibit.

Winthrop Laboratories, New York Booth 25

Carl Zeiss, Inc., New York Booths 72 & 73

The well known CARL ZEISS, OBERKOCHEN Slit Lamps on Instrument Table, and Compound Slide will again be featured. On display will be a new accessory for the slit lamp called the "Chamber Depth Measuring Device."

In addition, accessories for Gonioscopy, Photo-Attachment with Electronic Flash, and Miniature Camera for photographing the anterior segment of the eye will be shown.

The Carl Zeiss Operation Microscope, Twin Lamp, Diagnostic Set, Hand Lamp, Vertex Refractionometer, and Laboratory Microscopes will be on exhibit. All instruments have won many friends among eye and ear surgeons.

Zenith Radio Corporation, Chicago Booth R-15

Zylite Products Co., Inc., New York Booth 113

Featured in Zylite's display will be "TREND," which, in its many handsome variations, will provide men with youthful flattering frame styles.

Also making its debut will be "NICE," the latest addition to the Versatile Program, which was launched with Sugar and Spice earlier this year.

Zylo Ware Corporation, Long Island City, N. Y. Booth 58

SECTION ON INSTRUCTION

SIXTY-FIRST ANNUAL MEETING

American Academy of Ophthalmology and Otolaryngology

October 14-19, 1956

PALMER HOUSE

Chicago, Illinois

DEAN M. LIERLE, M.D.
Secretary for Instruction — Otolaryngology and Maxillofacial Surgery

A. D. RUEDEMANN, M.D.
Secretary for Instruction — Ophthalmology

The following condensed schedules of instruction courses are reprinted for the convenience of Fellows who have not yet placed orders for tickets.

Courses already sold out are so designated on the charts. Please do not request tickets for these courses.

For complete listing of course titles, instructors, and descriptive paragraphs about each subject, please refer to the March-April issue of the TRANSACTIONS.

General Instructions

Only members who have paid their 1956 *dues may order instruction tickets in advance of the meeting.* Members should order tickets only for their own use. Candidates for fellowship in the Academy are not privileged to reserve tickets in advance. After the session opens, no distinction between members, candidates and guests will be made in selling tickets.

Each period (1 hour) of instruction costs $2.00. *Orders unaccompanied by properly executed checks will not be filled.* Checks should be made payable to W. L. Benedict, M.D.

In case of inability to attend the meeting after order has been filled, a refund will be granted if requested prior to October 12.

If courses requested are not available and it is impossible to substitute, a refund will be granted. Refunds will not be sent by mail. A blue refund card will be placed in the Advance Registration Envelope which is received at the time of registration. This should be presented at the Instruction Desk for payment.

All orders for tickets will be filled according to postmark on envelope containing check. Telegrams will not be honored. Orders will not be accepted for presale after October 4. To ensure acceptance they should be mailed by October 1 to William L. Benedict, M.D., 100 First Avenue Building, Rochester, Minnesota.

Ordering Instruction Tickets

An *individual* course is complete in one (1) period. Most individual courses are repeated on two different days, allowing the subscriber to choose the day on which he wishes to attend.

A *continuous* course runs two (2) or more periods as indicated. It is not possible to purchase a ticket to only *part* of a continuous course.

At the end of this section is printed a colored sheet to be used when ordering tickets in advance. Specify preferences on this sheet and mail to the executive office. Careful attention to instructions will ensure the correct filling of your requests. *Since number of tickets for each course is limited, be sure to list second and third choices for each period in case first choice is already sold out. In every case, effort will be made to furnish first choices.*

If you are requesting registration in the continuous courses, please specify preferences for individual courses as substitutes in order to avoid disappointment should the continuous courses which you select be sold out when your order is received.

Acknowledgment of Advance Order

As soon as an advance order is filled, a postcard, listing the courses that have been reserved for him, will be mailed to the subscriber. Please do not ask to change courses after your order has been filled. The postcard is merely an assurance that your order has been filled; it is not necessary for registration at the Academy meeting.

Claiming Instruction Tickets

No tickets will be sent through the mails. Members who have ordered instruction course tickets will register at the *Advance Order Section* of the Registration Desk during the week of the Convention to secure registration badge, tickets, and all convention material.

Tickets will be on sale during the meeting at the Instruction Desk in the Registration Foyer.

KEY TO DESIGNATION OF PERIODS

The periods will be designated with the following key: Select tickets for — Otolaryngology, forenoons, periods 1-2-3 — Ophthalmology, afternoons, periods 4-5-6

Day	(M)onday	(T)uesday	(W)ednesday	(Th)ursday
Period a.m.		1 2 3	1 2 3	1 2 3
Period p.m.	4 5 6	4 5 6	4 5 6	4 5 6

M-4	2:00 p.m. to 3:00 p.m.	W-4	2:00 p.m. to 3:00 p.m.
M-5	3:15 p.m. to 4:15 p.m.	W-5	3:15 p.m. to 4:15 p.m.
M-6	4:30 p.m. to 5:30 p.m.	W-6	4:30 p.m. to 5:30 p.m.
T-1	9:00 a.m. to 10:00 a.m.	Th-1	9:00 a.m. to 10:00 a.m.
T-2	10:15 a.m. to 11:15 a.m.	Th-2	10:15 a.m. to 11:15 a.m.
T-3	11:30 a.m. to 12:30 p.m.	Th-3	11:30 a.m. to 12:30 p.m.
T-4	2:00 p.m. to 3:00 p.m.	Th-4	2:00 p.m. to 3:00 p.m.
T-5	3:15 p.m. to 4:15 p.m.	Th-5	3:15 p.m. to 4:15 p.m.
T-6	4:30 p.m. to 5:30 p.m.	Th-6	4:30 p.m. to 5:30 p.m.
W-1	9:00 a.m. to 10:00 a.m.		
W-2	10:15 a.m. to 11:15 a.m.		
W-3	11:30 a.m. to 12:30 p.m.		

(Familiarity with this key will be helpful and will avoid confusion)

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
1	Adler	Physiology of Vision	3 PERIODS M-4, T-4, W-4
2	Allen et al	Bacteriology & Infectious Diseases	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
3	Ballintine & Johnson	.....SOLD OUT.....	
4	Becker & Kinsey	Studies on Aqueous Flow	2 PERIODS M-4, M-5
5	Bedell	Medical Ophthalmoscopy	3 PERIODS M-4, T-4, W-4
6	Berke	.....SOLD OUT.....	
7	Berliner	Slit Lamp Microscopy: Advanced	4 PERIODS M-4, T-4, W-4, Th-4
8	Boeder	Practical Optics	2 PERIODS T-4, T-5
9	Brockhurst	Indirect Ophthalmoscopy	2 PERIODS T-5, T-6
10	Brown et al	Eye Muscles	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
11	Byrnes	Ophthalmic Filters	2 PERIODS T-4, T-5
12	Clark, G.	.....SOLD OUT.....	
13	Clark, W.	Cataract Extraction: Selection of Patient	2 PERIODS M-5, M-6
14	Clark, W.	Surgery of Ocular Muscles	2 PERIODS T-5, T-6
15 or 16	Copeland	Streak Retinoscopy	4 PERIODS M-4, M-5, T-4, T-5 or W-4, W-5, Th-4, Th-5
17	Costenbader et al	Comitant Strabismus	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
18	Guibor	Orthoptics: Office and Home Techniques	3 PERIODS T-6, W-6, Th-6
19	Henderson	Neuro-ophthalmology	3 PERIODS M-5, T-5, W-5
20	Hollenhorst	Arterial Diseases	2 PERIODS W-5, W-6
21	Hughes et al	Ophthalmic Plastic Surgery: Fundamental	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
22	Knighton et al	Highlights in Glaucoma	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
23	McLean et al	.....SOLD OUT.....	
24	Ogle	Essential Aspects of Binocular Vision	2 PERIODS T-4, T-5
25	O'Rourke	Cross Cylinders & Astigmatic Dials	2 PERIODS M-4, M-5
26	Pfeiffer & Jones, I.	Roentgenography of the Eye & Orbit	2 PERIODS M-4, M-5

SECTION ON INSTRUCTION

ADVANCE ORDER SHEET

All courses cost $2.00 for each period (one hour). Follow instructions explicitly and check for errors in listing before mailing.

Orders will not be accepted for presale after October 4. To ensure acceptance they should be mailed before October 1 to

WILLIAM L. BENEDICT, M.D., *Executive Secretary-Treasurer*
American Academy of Ophthalmology and Otolaryngology
100 First Avenue Building, Rochester, Minnesota

Academy Candidates and Guests May Purchase Tickets Only at Instruction Desk in Registration Foyer

(Over)

ADVANCE ORDER SHEET

ORDERS FILLED ONLY IF CURRENT DUES ARE PAID

NO REFUNDS WILL BE MADE AFTER OCTOBER 12

(Type or Print) Last Name First Name Middle Initial

Office Address

City Zone State

Days to be Present

- ☐ Monday
- ☐ Tuesday
- ☐ Wednesday
- ☐ Thursday

Total Amount Enclosed $_____

SELECTION OF COURSES ON REVERSE SIDE OF THIS BLANK

RECAPITULATION OF GENERAL INSTRUCTIONS

1. Monday, Tuesday, Wednesday, and Thursday are represented by the letters M, T, W, Th. The first period in the morning is represented by figure 1, second period by figure 2 and third period by figure 3. The first period in the afternoon is represented by figure 4, second period by figure 5, and third period by figure 6. All courses in oto-laryngology and maxillofacial surgery are presented in the mornings. All courses in ophthalmology are presented in the afternoons.

2. Reservation of instruction tickets in advance of the meeting will be made ONLY for MEMBERS whose 1956 dues have been paid. Academy candidates and guests may make selection of courses ONLY at the General Registration Desk in Chicago.

3. Make check payable to W. L. Benedict, M.D.

4. Mail order promptly to ensure reservation of first choices. If necessary, an attempt will be made to rearrange schedule to include "first choices."

(Over)

SELECTION OF COURSES

PERIOD		FIRST CHOICE		SECOND CHOICE		THIRD CHOICE	
		Course No.	Lecturer	Course No.	Lecturer	Course No.	Lecturer
MON.	4						
P.M.	5						
	6						
TUES.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
WED.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						
THURS.	1						
A.M.	2						
	3						
P.M.	4						
	5						
	6						

CONTINUOUS COURSES — OPHTHALMOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
27	Pischel	.....SOLD OUT.....	
28	Regan, J., & Regan, C.	Refraction: Practical Aspects & Aids in Difficult Problems	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
29	Rolett	.....SOLD OUT.....	
30	Romaine et al	Ocular Motility	8 PERIODS M-4, M-5, T-4, T-5 W-4, W-5, Th-4, Th-5
31	Romaine	Refraction Problems: Treatment	3 PERIODS M-6, T-6 W-6
32	Sanders et al	Vascular Diseases	3 PERIODS T-6, W-4, Th-4
33	Schimek & Bousquet	Gonioscopy & Aqueous Outflow Determinations	2 PERIODS M-5, M-6
34	Sloane	School Vision Testing	2 PERIODS M-4, M-5
35	Sloane	Telescopic Lenses	2 PERIODS T-4, T-5
36	Pollen & Gettes	Prescription of Prisms; Drugs in Refraction	2 PERIODS W-4, W-5
37	Smith et al	Ophthalmic Plastic Surgery: Advanced	8 PERIODS M-5, M-6, T-5, T-6 W-5, W-6, Th-5, Th-6
38	Stow	Diagnostic & Therapeutic Office Procedures	2 PERIODS W-4, W-5
39	Tait	Heterophoria	2 PERIODS M-4, M-5
40	Theobald et al	Histopathology	12 PERIODS M-4, M-5, M-6, T-4 T-5, T-6, W-4, W-5 W-6, Th-4, Th-5, Th-6
41	Thorpe et al	Slit Lamp Biomicroscopy: Fundamentals	9 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6
42	Thorpe et al	.....SOLD OUT.....	
43	Thorpe	Surgery of Intraocular Foreign Bodies	2 PERIODS T-4, T-5
44	Townes	Cataract Surgery: Complications	2 PERIODS W-4, W-5
45	Troutman	Enucleation Surgery: Management	2 PERIODS T-4, T-5
46	Wheeler & Knapp	Concomitant Strabismus	6 PERIODS M-4, M-5, T-4, T-5 W-4, W-5
47	Wise	Retinal Neovascularization	2 PERIODS W-4, W-5
48	Home Study		10 PERIODS M-4, M-5, M-6, T-4, T-5 T-6, W-4, W-5, W-6, Th-4

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Monday

Key M-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
201	Aldrich	Emotional Problems in the Ophthalmologist's Patients
204	Alvaro	Uveitis: Etiology & Treatment
207	Baird	Lesions of the Orbit: Differential Diagnosis
208	Bannon	Aniseikonia: Its Role in Refractive Problems
213	Berens	New Procedures in Ophthalmic Surgery
215	Bettman	Value of Goniotomy
217	Boyes	Problems in Eye Surgery
223	Chamlin	Perimetry
226	Cooper	Principles of Muscle Surgery
240	Dunlap	Divergence Anomalies
242	Falls	Practical Application of Heredity
244	Fink	Binocular Problems in Routine Refraction
245	Fonda	Subnormal Vision: Technique for Examination
267	Jacobson	Electroretinography
273	Katz	Ophthalmic Anatomy
291	Linn	Paralyses of Motor Nerves to the Eye
313	Myers	Vertical Phorias & Tropias
350	Whalman	Practical Points in Eye Surgery

Key M-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
203	Allen, H.	Operating Room Technique
210	Benedict	Atrophic Changes of the Iris
216	Block	Office Practice of Ophthalmology
218	Breinin	Electromyography
229	Coston	Inflammatory & Degenerative Disease of the Retina
235	Danielson	Retinoblastoma
248	Fry	Lesions at Posterior Pole of Eye
256	Hague	Irradiation in Ophthalmology
258	Hanno	Internal Medicine: Ophthalmic Problems
259	Hanser	Studies in Ocular Allergy
266	Iliff	.....SOLD OUT.....
276	Keyes	Retinal Vascular Disease
307	Merriam	Radiotherapy
348	Walsh	Neurological Syndromes

Key M-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
205	Amenabar	Retinal Detachment: Localization & Closure of Tears
206	Atkinson	Selection of Procedure for Cataract Extraction
211	Benton	Refraction: Handling the Difficult Patient
219	Calhoun	Dystrophies & Degenerations of the Cornea
225	Cohoe	Special Reading Instruction for the Partially Seeing
227	Cordes	Eye Changes in Diabetes
233	Cutler	Cataract: Methods of Extraction
234	Daily	Biomicroscopy of Vitreous & Fundus Oculi
236	Davidson	Surgical Instruments: Preparation & Care
237	Davis	Sutures in Cataract Surgery
238	Diskan	Visual Screening in Schools
246	Fralick	Surgical Anatomy in Operations for Glaucoma
247	Fread	Ideal Refraction Equipment
255	Gump	Recurrent Iridocyclitis
269	Jardon	Fitting Ocular Prostheses
272	Kasper	Dacryocystorhinostomy
274	Kennedy	Practical Perimetry
277	Kirby	Problems in Presbyopia
283	Leinfelder	Papilledema & Optic Neuritis
297	MacLean	Surgical Management of Cataracts
299	Mangold	Proper Fitting of Glasses
312	Murrah	Aids for Subnormal Vision
318	Perera	Retinal Detachment
325	Reese	Orbital Tumors
345	Uihlein	Neuralgias of the Head

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Tuesday

Key T-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
204	Alvaro	Uveitis: Etiology & Treatment
207	Baird	Lesions of the Orbit: Differential Diagnosis
217	Boyes	Problems in Eye Surgery
228	Cordes	.....SOLD OUT.....
239	Dixon	Indirect Ophthalmoscopy
240	Dunlap	Divergence Anomalies
241	Egan	Cross Cylinder: Application & Theory
243	Falls	Ocular Geriatrics
244	Fink	Binocular Problems in Routine Refraction
249	Gaines	Ophthalmologic Examination from a Neuro-ophthalmologic Viewpoint
270	Jones, L.	The Lacrimal Drainage System
289	Lewis	External Diseases
294	Lowrey	Tropical Ophthalmology
298	Macnie	Head Trauma with Ocular Symptoms
303	Maumenee	Surgical Indications for Corneal Procedures
310	Morrison	Office Management of Glaucoma
316	Paulson	Lighting for Comfortable & Accurate Seeing

Key T-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
218	Breinin	Electromyography
250	Gartner	Fundus Diseases
251	Gifford	Surgical Procedures on Lacrimal Apparatus
256	Hague	Irradiation in Ophthalmology
260	Harley	Lesions of 3rd, 4th and 6th Cranial Nerves
263	Hester	Clinical Photography
268	Jampolsky	Ocular Divergence
271	Joy	Cerebral Angiography
282	Leahey	Corneal Transplantation
290	Linksz & Tait	Telescopic Lenses & Magnifying Systems
309	Miller	Corneal Disease
319	Pino & Edwards	Correction of Aphakia
326	Rizzuti	Tumors of the Lids & Ocular Adnexa
330	Rychener	The Lacrimal Apparatus
342	Swan	Advances in Ophthalmic Therapy

Key T-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
212	Berens	.....SOLD OUT.....
219	Calhoun	Dystrophies & Degenerations of the Cornea
224	Chandler	Cataract Surgery: Complications
231	Cunningham	Types of Head Pain
233	Cutler	Cataract: Methods of Extraction
234	Daily	Biomicroscopy of Vitreous & Fundus Oculi
247	Fread	Ideal Refraction Equipment
252	Gipner	Recent Advances in Ophthalmology
274	Kennedy	Practical Perimetry
277	Kirby	Problems in Presbyopia
279	Kornzweig	Practical Embryology
284	Leinfelder	Perimetry & Use of Tangent Screen
292	Lloyd	Diseases of Cornea
295	Lubkin	Psychosomatic Aspects of Ophthalmology
296	Luce	Wound Healing
299	Mangold	Proper Fitting of Glasses
304	McDonald	Value of Tinted Lenses
318	Perera	Retinal Detachment
327	Roberts	Early Diagnosis of Glaucoma
329	Ruedemann	Physiologic Changes Due to Vertical Muscles
331	Scarney	Slit Lamp Biomicroscopy
332	Scheie	Surgery for Congenital Glaucoma
345	Uihlein	Neuralgias of the Head

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Wednesday

Key W-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
220	Cassady	Dacryocystitis & Lacrimal Drainage
222	Chamberlain	Vertical Motor Anomalies
232	Cusick	Ptosis
239	Dixon	Indirect Ophthalmoscopy
241	Egan	Cross Cylinder: Application & Theory
257	Haik	Intracapsular Cataract Extraction
262	Havener	Abnormalities of the Optic Disc
275	Kestenbaum	Chiasmal Diseases
278	Klien	Clinical Pathology of the Retina
281	Kronfeld	Choice of the Surgical Procedure in Glaucoma
285	Lamoine	Vitreous Opacities
288	Levy	Motion Picture Photography
289	Lewis	External Diseases
306	McGuire	Heterophoria & Heterotropia
310	Morrison	Office Management of Glaucoma
311	Mullen	Ophthalmic Emergencies
340	Steffensen	ACTH, Cortisone & Hydrocortisone
343	Tassman	Retinopathy in Diabetes

Key W-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
209	Haas	Congenital Glaucoma: Diagnosis & Treatment
251	Gifford	Surgical Procedures on Lacrimal Apparatus
253	Givner	Eye Changes in Systemic Disease
261	Harris	Anesthetic Agents & Techniques
265	Hughes	Advances in Diagnosis & Surgical Treatment
280	Kronenberg	Practical Ocular Therapeutics
282	Leahey	Corneal Transplantation
290	Linksz & Tait	Telescopic Lenses & Magnifying Systems
293	Lloyd	Fundus Lesions of the Senile Eye
300	Mann, M.	Hypertensive Vascular Changes in the Fundus
302	Marshall	Chronic Infections of the Lids
315	Olson	Iritis, Iridocyclitis & Keratitis
323	Prewitt	External Eye Diseases Associated with Allergy
330	Rychener	The Lacrimal Apparatus
337	Solanes	Uveomeningitis Syndromes
344	Theodore	Ocular Therapeutics
352	Wood	Inflammatory Central Retinal Lesions

Key W-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
205	Amenabar	Retinal Detachment: Localization & Closure of Tears
221	Cassady	Toxoplasmic Retinochoroiditis
252	Gipner	Recent Advances in Ophthalmology
254	Gordon	Visual Aids
264	Hogan	Lesions of the Choroid
284	Leinfelder	Perimetry & Use of Tangent Screen
287	Lepard	Eye Diseases Common to Children
301	Mann, W.	Functional Visual Impairment
305	McGraw	Contact Lenses
308	Meyer	Surgical Treatment of Glaucoma
314	Nethercut	Chorioretinitis: Etiology & Treatment
317	Payne	Extraction of Complicated Cataract
320	Pino & Edwards	Problems in Bifocals
322	Post	Refinements of Refraction
324	Randolph	Advanced Glaucoma
328	Rudolph & Schlaegel	Chemotherapy
332	Scheie	Surgery for Congenital Glaucoma
336	Simpson	.....SOLD OUT.....
339	Spaeth	Plastic Surgery: Practical Aspects
341	Sugar	.....SOLD OUT.....
346	Vail	Surgery of the Senile Cataract
347	Veirs	External Dacryocystorhinostomy
349	Weisser	Chronic Uveitis
351	Wise	Fundus Change of the Optic Nerve Head

SCHEDULE OF INDIVIDUAL COURSES — OPHTHALMOLOGY — Thursday

Key Th-4 — 2:00 p.m. to 3:00 p.m.

Course No.	SPEAKER	SUBJECT
202	Alfano	Internal Carotid Artery
220	Cassady	Dacryocystitis & Lacrimal Drainage
222	Chamberlain	Vertical Motor Anomalies
230	Cowen	.....SOLD OUT.....
232	Cusick	Ptosis
259	Hanser	Studies in Ocular Allergy
275	Kestenbaum	Chiasmal Diseases
278	Klien	Clinical Pathology of the Retina
285	Lemoine	Vitreous Opacities
287	Lepard	Eye Diseases Common to Children
298	Macnie	Head Trauma with Ocular Symptoms
306	McGuire	Heterophoria & Heterotropia
311	Mullen	Ophthalmic Emergencies
321	Posner	Glaucomatocyclitic Crises
331	Scarney	Slit Lamp Biomicroscopy
333	Schwartz	Eye Changes Associated with Skeletal Disease
335	Simpson	Convergence Insufficiency & Divergence Excess
338	Spaeth	Selection of Surgery for Complicated Ptosis
340	Steffensen	ACTH, Cortisone & Hydrocortisone
343	Tassman	Retinopathy in Diabetes

Key Th-5 — 3:15 p.m. to 4:15 p.m.

Course No.	SPEAKER	SUBJECT
209	Haas	Congenital Glaucoma: Diagnosis & Treatment
214	Bettman	Radioactive Isotopes
260	Harley	Lesions of 3rd, 4th & 6th Cranial Nerves
280	Kronenberg	Practical Ocular Therapeutics
286	Lennon	Therapy of Acute Inflammatory Glaucoma
300	Mann, M.	Hypertensive Vascular Changes in the Fundus
302	Marshall	Chronic Infections of the Lids
308	Meyer	Surgical Treatment of Glaucoma
315	Olson	Iritis, Iridocyclitis & Keratitis
323	Prewitt	External Eye Diseases Associated with Allergy
334	Shipman	.....SOLD OUT.....
344	Theodore	Ocular Therapeutics
349	Weisser	Chronic Uveitis
352	Wood	Inflammatory Central Retinal Lesions

Key Th-6 — 4:30 p.m. to 5:30 p.m.

Course No.	SPEAKER	SUBJECT
317	Payne	.....SOLD OUT.....
347	Veirs	.....SOLD OUT.....

CONTINUOUS COURSES AND PANEL DISCUSSIONS
OTOLARYNGOLOGY

COURSE	SPEAKERS	SUBJECT	PERIODS USED
101	Brewer & Briess	Voice Therapy	2 PERIODS Th-2, Th-3
102 or 103	Conley, Daly & Martin	Carcinoma of Head & Neck	2 PERIODS T-1, T-2 or W-1, W-2
104	Converse	Nasal Plastic Surgery—Basic	2 PERIODS T-1, T-2
105	Converse	Nasal Plastic Surgery—Advanced	2 PERIODS Th-2, Th-3
106 or 107	Craft	Nasal Allergy	2 PERIODS T-2, T-3 or Th-2, Th-3
108 or 109	Dixon, Sooy & Goodale	Rhinologic Problems	2 PERIODS T-2, T-3 or W-2, W-3
110	Fox et al	Noise in Industry	2 PERIODS Th-2, Th-3
111 or 112	Hansel	Allergy	2 PERIODS W-2, W-3 or Th-1, Th-2
113 or 114	Hardy & Pauls	Clinical Audiometry for Young Children	2 PERIODS T-1, T-2 or W-1, W-2
115	Hilding	Physiology of Hearing: Relation to Hearing Loss	2 PERIODS T-2, T-3
116 or 117	Jackson	Cancer of Larynx, Bronchi & Esophagus	2 PERIODS W-2, W-3 or Th-2, Th-3
118	Kazanjian et al	Traumatic Injuries of Face	2 PERIODS W-2, W-3
119	Lindsay	Vertigo	2 PERIODS Th-1, Th-2
120	Maxwell	Diseases of Salivary Glands	2 PERIODS W-1, W-2
121 or 122	Meltzer et al	Your Otological Office Problems	2 PERIODS T-1, T-2 or W-2, W-3
123 or 124	Mueller et al	What the Otologist Should Know About Hearing Aids	2 PERIODS T-1, T-2 or Th-2, Th-3
125	Reed et al	Voice Therapy	2 PERIODS T-1, T-2
126	Scheldrup	Anatomy of Neck	2 PERIODS Th-2, Th-3
127 or 128	Seltzer	A Typical Rhinoplasty	2 PERIODS T-2, T-3 or Th-2, Th-3
129 or 130	Walsh	What Can Be Done for Deafness	2 PERIODS T-1, T-2 or Th-1, Th-2
131 or 132	Work	Techniques in Wide Field Laryngectomy	2 PERIODS T-2, T-3 or W-2, W-3
133	Harbert	Clinical Audiology	2 PERIODS Th-2, Th-3

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Tuesday

Key T-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
401	Adin	Approaches to the Mastoid Antrum
402	Albers	Branchial Anomalies
403	Alexander	The Adenoid Problem
406	Anderson	Streamlined Allergy History
410	Baker	Chronic Nonspecific Laryngitis
413	Bell	Harelip Nose in the Adult
419	Cody	Eustachian Tube
425	Davies	Pharynx Development in Man
447	Hantman	Newer Aids in Teaching Otology
449	Harris	Nasal Polypi
453	Holinger & Johnston	Bronchoscopic Techniques
458	Huffman	Treatment of Facial Fractures
465	Keim	Management of Parotid Tumors
475	Lewis, J.	Facial Scars
491	Putney	Combined One-Stage Pharyngeal Diverticulectomy
498	Sellers	Frontal Sinusitis: Acute & Chronic Infections
499	Senturia	Diseases of the External Ear
505	Skolnik	Cleft Palate
512	Tato	Tympanoplasty: Functional Examination
516	Tschiassny	Labyrinthine Function

Key T-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
405	Altmann	Tympanoplasty
417	Brodnitz	The Actor & Singer in ENT Practice
424	Crispell	Allergy in Children
436	Forman	Binaural Hearing
450	Higbee	Office Practice
466	Kelemen	Stapes Mobilization
468	Kemler	Bilateral Thyrotomy for Cancer of Larynx
472	Lawrence	Acoustic Tolerance of the Individual Ear
476	Lewis, M.	Temporal Bone Surgery
486	Neivert	Workshop for Deformed Instruments
494	Rinkel	Food Allergy
502	Simmons	Problem of Bleeding Patient
507	Smith	Facial Nerve Paralyses
515	Tremble	Practical Therapeutics in Office Practice
517	Van Alyea	Management of Sinusitis

Key T-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
407	Anson & Bast	Anatomy of Ear & Temporal Bone
412	Becker	Plastic Surgery of Protruding Ears
414	Bellucci	Submucous Resection of Nasal Septum
416	Brandenburg	Understanding the Problem Patient
418	Canfield	Speech Audiometry
423	Crane	Helpful Hints
427	Dean	Practical Neuro-otolaryngology
428	Derlacki	Conductive Deafness
434	Ferguson	Pediatric Bronchography
437	Fowler	Facial Paralysis & Tics
456	House	Surgery of Chronically Discharging Ear
461	Jones	Allergic Rhinitis
474	Lempert	Temporal Bone Surgery
482	Miller, J.	Mucolytic Aerosols for Obstructive Respiratory Conditions
485	Morrison	The Pain in the Neck
493	Reger	Practical Office Audiometry
496	Ryan	Headache
508	Som	Laryngoesophagectomy
511	Syracuse	Prevention of Postoperative Drooping of Nasal Tip
520	Wanamaker	Temporomandibular Joint
522	Williams	Treatment of Meniere's Disease
524	Wynn	External Nasal Growths

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Wednesday

Key W-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
402	Albers	Branchial Anomalies
403	Alexander	The Adenoid Problem
404	Alfaro	Office Design & Equipment
408	Anthony	Atresias of Ear Canal
409	Ashley	Respiratory Allergy
413	Bell	Harelip Nose in the Adult
426	Davison	Ethmoid Sinus Disease
429	DeWeese	Problem of the Dizzy Patient
449	Harris	Nasal Polypi
451	Hilger	The Injured Malar Bone
452	Hilsinger	Vascular Headaches
457	House	.....SOLD OUT.....
459	Huffman	Acute Injuries of Soft Tissues of Face
462	Jordan	Nasal Fractures
467	Kelemen	Congenital Deafness
475	Lewis, J.	Facial Scars
480	McNally	Labyrinthine Tests
492	Reed, McLaurin & Senturia	Pathology & Bacteriology
493	Reger	Practical Office Audiometry
501	Shambaugh	Practical Office Routine
506	Skolnik	Electrodiagnosis of Facial Nerve
513	Toto	Tympanoplasty

Key W-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
405	Altmann	Tympanoplasty
411	Barrett	Neuroautonomic Aspects of Headache Therapy
420	Corgill	Laryngopharyngectomy & Bilateral Neck Dissection
439	Glorig	Hearing Aid Selection
447	Hantman	Newer Aids in Teaching Otology
464	Kasper	Dacryocystorhinostomy
469	Kinney	Hearing Impairments in Children
473	Lederer	Prevention of Otolaryngologic Misadventures
477	Lundy	Analgesia & Anesthesiology
484	Moore, P. M.	Cysts & Fistulas of Face & Neck
487	Neivert	Surgery of Bony Nasal Vault
488	Ogura	Laryngectomy & Neck Dissection
495	Rusk	Head-Low Position in Tonsillectomy
502	Simmons	Problem of Bleeding Patient
503	Simonton	Nasal Polyps
510	Suehs	Secretory Otitis Media
517	Van Alyea	Management of Sinusitis
521	Wanamaker	Pain on Side of Face

Key W-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
407	Anson & Bast	Anatomy of Ear & Temporal Bone
410	Baker	Chronic Nonspecific Laryngitis
412	Becker	Plastic Surgery of Protruding Ears
418	Canfield	Speech Audiometry
431	Erich	Fractures of Facial Bones
432	Farrior	Laryngectomy, Neck Resection & Cancer of Larynx
441	Goldman	Vasomotor Rhinitis
444	Gorney	Esophageal Strictures
445	Hamilton	Allergic Reactions to Drugs & Antibiotics.
460	Hunnicutt	The Chronically Congested Nose
461	Jones, E.	Allergic Rhinitis
463	Juers	Preservation of Hearing in Surgery
471	Kos	.....SOLD OUT.....
474	Lempert	Temporal Bone Surgery
478	McHugh	Peripheral & Central Hearing Disorders in Children
479	McLaurin	Treatment of External Otitis
497	Schuknecht	Perceptive Deafness
514	Tolan	Treatment of Chronic Sinusitis
518	Von Leden & Moore, P.	Organic Voice Problems
519	Wallner	Effects of Tobacco on Respiratory Tract
524	Wynn	External Nasal Growths

SCHEDULE OF INDIVIDUAL COURSES — OTOLARYNGOLOGY — Thursday

Key Th-1 — 9:00 a.m. to 10:00 a.m.

Course No.	SPEAKER	SUBJECT
404	Alfaro	Office Design & Equipment
409	Ashley	Respiratory Allergy
429	DeWeese	Problem of the Dizzy Patient
430	Dolowitz	Adrenal Steroids as Anti-Inflammatory Agents
438	Gill	Mycotic Infections
440	Glorig	The Noise Problem
443	Goodhill	Management of Tinnitus
454	Holinger & Johnston	Pediatric Laryngology
455	Hoople	Pitfalls in Office Audiometry
457	House	Stapes Mobilization Procedure
460	Hunnicutt	The Chronically Congested Nose
470	Kobrak	Treatment of Middle Ear Deafness
480	McNally	Labyrinthine Tests
481	Miller, A.	Laryngeal & Tracheal Emergencies in Infants & Children
488	Ogura	Laryngectomy & Neck Dissection
489	Pearlman	ENT Complaints in Old Age
494	Rinkel	Food Allergy
500	Senturia	Middle Ear Effusions
501	Shambaugh	Practical Office Routine
504	Sisson	Carcinoma of Maxillary Sinus
509	Sooy	Benign & Malignant Tumors of Nasal Cavities
511	Syracuse	Prevention of Postoperative Drooping of Nasal Tip
516	Tschiassny	Labyrinthine Function

Key Th-2 — 10:15 a.m. to 11:15 a.m.

Course No.	SPEAKER	SUBJECT
417	Brodnitz	The Actor & Singer in ENT Practice
421	Costen	Mandibular Joint Syndrome
450	Higbee	Office Practice
464	Kasper	Dacryocystorhinostomy
469	Kinney	Hearing Impairments in Children
471	Kos	Stapedial Mobilization
473	Lederer	Prevention of Otolaryngologic Misadventures
484	Moore, P.M.	Cysts & Fistulas of Face & Neck
490	Perlman	Fluid in Middle Ear
491	Putney	Combined One-Stage Pharyngeal Diverticulectomy
496	Ryan	Headache
515	Tremble	Practical Therapeutics in Office Practice
522	Williams	Treatment of Meniere's Disease
523	Woodman	Glottic Obstruction

Key Th-3 — 11:30 a.m. to 12:30 p.m.

Course No.	SPEAKER	SUBJECT
415	Bellucci	Surgery of Stapes & Oval Window
419	Cody	Eustachian Tube
422	Craddock	Hay Fever
426	Davison	Ethmoid Sinus Disease
431	Erich	Fractures of Facial Bones
433	Farrior	Fenestration Operation
442	Goldman	Diseases of Maxillary Sinus
444	Gorney	Esophageal Strictures
446	Hampsey	Sinusitis in Children
451	Hilger	The Injured Malar Bone
478	McHugh	Peripheral & Central Hearing Disorders in Children
483	Missal	Skin Testing
485	Morrison	The Pain in the Neck
495	Rusk	Head-Low Position in Tonsillectomy
497	Schuknecht	Perceptive Deafness
498	Sellers	Frontal Sinusitis: Acute & Chronic Infections
514	Tolan	Treatment of Chronic Sinusitis

News - - - Notes

SIXTH INTERNATIONAL CONGRESS OF OTOLARYNGOLOGY

The deadline for submitting titles of papers and films for presentation at the Sixth International Congress of Otolaryngology is October 1, 1956. Requests for places on the scientific program, together with an 800-word abstract of the paper, must be received before that date. Applications and abstracts should be sent by air mail to the General Secretary, 700 N. Michigan Ave., Chicago 11, Ill., U.S.A.

PAN AMERICAN ASSOCIATION OF OPHTHALMOLOGY

Plans are well under way for the Fourth Interim Congress of the Pan American Association of Ophthalmology, which will be held in New York City, April 7-10, 1957, with headquarters at the Hotel Statler.

Dr. Brittain F. Payne, New York, President of the Association, and Dr. Moacyr E. Alvaro, Sao Paulo, Brazil, Executive Director, have announced the following appointments of chairmen of local committees:

Program: Dr. John M. McLean, New York

Motion Pictures: Dr. Wendell L. Hughes, Hempstead, L. I.

Exhibits: Dr. Gerald E. Fonda, Short Hills, N. J.

Entertainment and Special Arrangements: Dr. Elizabeth Constantine, New York

Registration and Housing: Dr. Girolamo Bonaccolto, New York

Press and Public Relations: Dr. Frank Constantine, New York

Acting in an advisory capacity to the planning committee are the following ophthalmologists: William L. Benedict, Rochester, Minnesota, executive secretary-treasurer, American Academy of Ophthalmology and Otolaryngology; Daniel Snydacker, Chicago, former acting executive-secretary for countries north of Panama; J. Wesley McKinney, Memphis, present executive secretary for countries north of Panama; Conrad Berens, New York, past president; Algernon B. Reese, New York, assistant secretary-treasurer; and Franklin M. Foote, executive director of the National Society for the Prevention of Blindness.

The Interim Congress will meet jointly with the National Society for the Prevention of Blindness. The eye specialists will hold sessions in the mornings, and the National Society will present its programs in the afternoons.

AMERICAN OPHTHALMOLOGICAL SOCIETY

At the recent annual meeting of the American Ophthalmological Society the following officers were elected for the current year: president, Dr. Frederick C. Cordes, San Francisco; vice-president, Dr. Walter S. Atkinson, Watertown, N. Y.; secretary-treasurer, Dr. Maynard C. Wheeler, New York; and editor, Dr. Gordon M. Bruce, New York.

AMERICAN RHINOLOGIC SOCIETY

The American Rhinologic Society will hold its annual meeting in Chicago, October 9-13, 1956.

The first evening will be devoted to a business session. A series of surgical demonstrations and seminars will be presented in the Illinois Masonic Hospital from 8 a.m. to 10 p.m. on the three following days. These will cover many phases of rhinology and will be conducted under the direction of Dr. Maurice H. Cottle, professor and chairman of the Department of Otolaryngology, Chicago Medical School.

The annual scientific program will be presented in the Palmer House on the closing day. This will include a morning symposium on "Expanding Horizons in Rhinology," with the following participants:

Dr. Charles J. Petrillo, Yale University School of Medicine, New Haven. (Anatomy)

Dr. Newton D. Fischer, University of North Carolina School of Medicine, Chapel Hill. (Physiology)

Dr. Harold S. Ulvestad, University of Minnesota Medical School, Minneapolis. (Surgery)

Dr. French K. Hansel, Washington University College of Medicine, St. Louis. (Allergy)

Guest speakers and their subjects on the afternoon program will be as follows:

Dr. Roy R. Grinker, director of the Institute for Psychosomatic and Psychiatric Research, Michael Reese Hospital, Chicago, "The Psychosomatic Approach to Rhinological Problems."

Dr. Conrad Pirani, professor of pathology, University of Illinois College of Medicine, Chicago, "The Connective Tissue in Wound Healing."

Hubert R. Catchpole, Ph.D., research associate professor of pathology, University of Illinois College of Medicine, Chicago, "Newer Ideas on the Significance of Ground Substance of Connective Tissue."

Dr. Matthew S. Ersner, professor of otolaryngology and rhinology, Temple University, Philadelphia, will be the guest of honor and speaker at a dinner in the evening. The toastmaster will be Dr. Ralph H. Riggs, Shreveport, president of the Society.

Physicians are welcome to attend the scientific session as invited guests of members of the Society. There is no registration fee.

Further information may be had by writing to Mrs. Mabel Campbell, corresponding secretary, 834 Wellington Avenue, Chicago 14, Illinois.

SECTION ON OPHTHALMOLOGY, A.M.A.

The Section on Ophthalmology of the American Medical Association made the following awards at its June 1956 meeting:

The medal "The Prize in Ophthalmology" was awarded to Dr. Derrick T. Vail. Dr. Trygve Gundersen gave the presentation address.

The $250.00 prize for the best exhibit was awarded to Dr. Bertha A. Klien for her "Survey of the Pathogenesis of Retinal Vein Occlusions."

Dr. T. E. Sanders was awarded the $250.00 prize for his paper, "Fungus Keratitis." The papers were judged on the basis of originality and presentation.

THE SOCIETY OF MILITARY OPHTHALMOLOGISTS and THE SOCIETY OF MILITARY OTOLARYNGOLOGISTS

The Society of Military Ophthalmologists and the Society of Military Otolaryngologists will hold a joint stag dinner meeting at the time of the annual meeting of the American Academy of Ophthalmology and Otolaryngology in Chicago in October.

Dinner will be served at 6:30 p.m. on October 16, 1956, at the Palmer House. The dinner will be followed by a short business meeting.

All members of the Society of Military Ophthalmologists and the Society of Military Otolaryngologists are invited to attend. Application may be made either to Captain James A. Stokes, MC, Secretary-Treasurer, Society of Military Ophthalmologists, Eye Clinic, Walter Reed Army Hospital, Washington 12, D. C. or to Major Stanley H. Bear, MC, 3810th USAF Hospital, Maxwell Air Force Base, Alabama.

ILLINOIS

AAOO Ladies' Program:

The 30th St. Luke's Hospital Fashion Show will be presented at 2:30 Wednesday, October 17th, at Medinah Temple.

The entire main floor of Medinah Temple is used for boxes which are priced at $100 for six tickets. The first eight rows of the dress circle (a low mezzanine balcony) are $10 for a ticket. The rows behind them are $7 per ticket. The first six rows in the balcony are $5 per ticket; the upper rows, $3. All seats are reserved.

The tickets go on sale at 9:00 o'clock, Monday, September 17th, Room 332, 919 N. Michigan Avenue, Chicago 11. Mail orders for tickets will be carefully filled in the order in which they are received. A check, of course, must accompany the order. Returned tickets cannot be accepted for cash refund.

NEW YORK

An annual prize in memory of the late Judge William Warner Hoppin has been established by his family. The prize is to be awarded for the outstanding paper at the Residents Meetings, Section of Ophthalmology, New York Academy of Medicine. The advisory committee of the Section is to act as judge.

Judge Hoppin (1878-1948) served as assistant United States Attorney General during the administration of Woodrow Wilson and was appointed Magistrate of the City of New York by Mayor La-Guardia.

As a member of the Board of Visitors of the Central Islip State Hospital and as secretary of the New York Association for the Blind (The Lighthouse), he was vitally interested in the field of ophthalmologic research and prevention of blindness. Ironically, he died in 1948 of cancer, as a result of metastasis of a malignant melanoma of the choroid.

The prize will consist of a scroll and a cash award to be presented by Mrs. Hoppin at the fall meeting. The winning paper this year is "Carcinoma of the Meibomian Glands," by Bradley Straatsma, M.D., resident at the Institute of Ophthalmology, College of Physicians and Surgeons, New York City.

COURSE IN HISTOPATHOLOGY OF THE EYE: October 1-6, 1956

An intensive course, making use of one of the word's largest eye collections, will be given by Drs. Bernard A. Roberts and Lawrence Samuels of the Department of Ophthalmic Pathology, New York Eye and Ear Infirmary, Brittain F. Payne, M.D., director. The number of students will be limited. For information, write to Registrar, New York Eye and Ear Infirmary, 218 Second Ave., New York 3.

OREGON

Dedication ceremonies for the $6,300,000 University of Oregon Medical School Hospital were recently conducted in Sam Jackson Park, Portland.

The fourteen-story teaching and research center contains 277 beds, as well as classrooms and research laboratories. An enclosed overpass at the tenth floor will connect the hospital with the outpatient clinic. This passage and a portion of the tenth floor will house the John E. Weeks Institute for Ophthalmological Research, made possible by a donation of $200,000 given some years ago by the late Dr. John E. Weeks. The ophthalmology department will continue its children's eye program, supported by the Elks Lodge.

CANADIAN OPHTHALMOLOGICAL SOCIETY

The Nineteenth Annual Meeting of the Canadian Ophthalmological Society was held at the Chateau Frontenac in Quebec City in June 1956. Dr. John McLean of Vancouver was in the chair in the absence of the president, Dr. Henri Pichette, who was ill.

At this meeting there was considerable discussion regarding the development of eye banks in Canada. The distinguished managing director of the Canadian National Institute for the Blind, Colonel E. A. Baker, was made an honorary member and addressed the Society briefly.

Dr. J. H. Grove, the chief of the Division of Blindness Control of the Department of National Health and Welfare at Ottawa, was made an associate member of the Society. Dr. Grove expressed the desire of his department to work together with the ophthalmologists in solving visual problems.

The Society was honored by the visit of two distinguished ophthalmologists from abroad: Dr. Moacyr Alvaro of Sao Paulo, Brazil and Mr. H. E. Hobbs of London, England. Dr. Alvaro gave a paper on "The Results of Organized Ophthalmology in the Americas." Mr. Hobbs gave a paper on "Visual Field Defects in Chiasmal Lesions" and participated in the discussion of other papers.

Dr. Paul Chandler of Boston was the guest of honor and gave two papers, "Angle Closure Glaucoma" and "Complications of Congenital Cataract Surgery."

Papers by the members covered nearly every branch of ophthalmology. All the papers will appear in the Transactions of the Canadian Ophthalmological Society.

Dr. John McLean of Vancouver was elected president for the coming year and will preside at the next annual meeting, which will be held at Banff in June 1957. Dr. J. V. V. Nicholls of Montreal was elected vice-president. Dr. J. Minnes of Vancouver was elected a member of the Council. Dr. R. G. C. Kelly of Toronto, secretary, Dr. B. Alexander of Montreal, treasurer, and Dr. Clement McCulloch of Toronto, editor-in-chief of the Society Transactions, were re-elected to their offices.

OPHTHALMOLOGICAL SOCIETY OF NEW ZEALAND

The Ophthalmological Society of New Zealand met in Wellington July 31-August 3, 1956. Visitors included Prof. J. Francois of Belgium and Dr. W. J. Holmes of Honolulu. The following papers were presented: "Gonioscopy in Primary Glaucoma," "Microradiographic Studies of Schlemm's Canal and of the Vascularization of the Optic Pathways," "Perfusion Studies In Vitro of Normal and Glaucomatous Human Eyes," "Industrial Ophthalmology," and "Recent Trends in Ocular Leprosy." Local members of the Society also presented papers and cases of clinical interest.

BOOK REVIEW

SURGERY OF THE EYE: DISEASES—By Alston Callahan, M.D. Charles C Thomas, Publisher, Springfield, Illinois; Blackwell Scientific Publications, Ltd., Oxford, England; The Ryerson Press, Toronto, Ont., Canada, 1956. Cloth, 147 pp., 263 illustrations, $25.00.

This is a new and original textbook on ocular surgery. A brief description of surgical conditions is accompanied by comments on surgical treatment; then the various applicable techniques are summarized with remarks on the author's experience, what course he would choose and why. More space is devoted to surgery for cataract and glaucoma; and wisely so, for that is where most of the eye surgery is needed. Operations on muscles are carefully described and illustrated by original drawings that are excellent. It is modern and up to date in all respects and deserves a place on every ophthalmologist's desk.

W.L.B.

POSITIONS AVAILABLE

The Straub Clinic, Honolulu, has an opening for a Board-certified or Board-eligible otolaryngologist. A man in his thirties is preferred. Interested persons should correspond directly with Dr. Thomas W. Cowan, Straub Clinic, 1020 Kapiolani St., Honolulu, Hawaii.

Listings of positions available should be sent to W. L. Benedict, M.D., 100 First Avenue Building, Rochester, Minn., by the fifth of the month preceding publication. They should include (1) type of physician wanted (ophthalmologist or otolaryngologist; diplomate, resident, etc.); (2) type of position to be filled; and (3) whom to write for further information. Unless otherwise requested, listings will be published once only.

OPHTHALMIC PATHOLOGY

Dr. Michael J. Hogan, chairman of the Committee on Ophthalmic Pathology of the American Academy of Ophthalmology and Otolaryngology, announces that specimens of eyes will be received by the following institutions for processing:

INSTITUTION	NUMBER OF ADDITIONAL EYES POSSIBLE TO PROCESS YEARLY
Baylor University College of Medicine, Houston, Texas	100
Brooklyn Eye and Ear Hospital, Brooklyn	25
Cleveland Clinic Hospital, Cleveland	100
Cornell University Medical Center, New York	25
Doheny Laboratory, St. Vincent's Hospital, Los Angeles	120–150
Emory University School of Medicine, Atlanta	50
Episcopal Eye, Ear, Nose and Throat Hospital, Washington, D. C.	75
Eye, Ear, Nose, and Throat Hospital, Pittsburgh	50–75
Grace-New Haven Community Hospital, New Haven, Conn.	25
Manhattan Eye, Ear and Throat Hospital, New York	25
Medical College of Alabama, Birmingham, Ala.	50
Medical College of Virginia, Richmond, Va.	15
Montefiore Hospital, New York	50
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The meeting dates of the Sixth International Congress of Otolaryngology are again emphasized as May 5 through May 10, 1957. The scientific program for the Plenary Sessions is now complete and is as follows:

CHRONIC SUPPURATION OF THE TEMPORAL BONE

Openers:

MARCUS DIAMANT, Central County Hospital, Halmstad, Sweden
Anatomical Etiological Factors in Chronic Middle Ear Discharge

LUZIUS RUEDI, Zürich, Switzerland
Pathogenesis and Treatment of Cholesteatoma in Chronic Suppuration of the Temporal Bone

HORST WULLSTEIN, Director, Otolaryngological Clinic, University of Würzburg, Germany
Surgical Repair for Improvement of Hearing in Chronic Otitis Media

Discussers:

A. TUMARKIN, Liverpool, England
JUAN MANUEL TATO, Buenos Aires
T. E. CAWTHORNE, London, England
FRITZ ZOLLNER, Freiburg, Germany

COLLAGEN DISORDERS OF THE RESPIRATORY TRACT

Openers:

HANS SELYE, Director, Institute of Experimental Medicine and Surgery, University of Montreal, Faculty of Medicine, Montreal, Canada
Introduction

MICHELE ARSLAN, Padua, Italy
The Upper Respiratory Tract

LESLIE GAY, Physician-in-Charge, Allergy Clinic, The Johns Hopkins Hospital, Baltimore, U.S.A.
The Lower Respiratory Tract

Discussers:

VICTOR E. NEGUS, London, England
BRANIMIR GUSIC, Zagreb, Yugoslavia
AUBREY G. RAWLINS, San Francisco, USA
HENRY L. WILLIAMS, Rochester, Minn., USA

PAPILLOMA OF THE LARYNX

Openers:

Jo ONO, Tokyo, Japan
Etiology

PLINIO DE MATTOS BARRETTO, Faculty of Medicine, University of Sao Paulo, Brazil
Diagnosis

F. C. W. CAPPS, London, England
Therapy

Discussers:

C. A. HAMBERGER, Göteborg, Sweden
PEDRO HERNANDEZ GONZALO, Havana, Cuba
EELCO HUIZINGA, Groningen, Netherlands
ALBERT VON RICCABONA, Vienna, Austria

Applications to present voluntary papers are being received regularly, and anyone wishing to present such a paper should make known his intentions prior to the deadline of October 1, 1956.

The motion picture sessions, as well as the scientific exhibits, will be outstanding in every respect. The final date for consideration of exhibits was August 1, 1956; applications to present motion picture films should be sent in before October 1, 1956. Anyone planning to attend the Congress and who has not yet registered should do so immediately in order to obtain hotel registration priority.

For more detailed information pertaining to the Sixth International Congress please communicate with the

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